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PORCH WITH ROSES

THE

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1891.

(FOR THE CANADIAN HORTICULTURIST).

'TIS midnight! hear the solemn chime,
Which tells the ceaseless flight of Time,
Whose restless wings hath swept away
Old Ninety to Eternity!
The hoary centuries now claim
Another link in Time's great chain.
And e're Aurora lights the morn,
The infant Ninety-one is born.
God bless the Royal, rosy boy!
Child, we hope, of peace and joy!
Hear chanticleer proclaim the birth
Of the great monarch of the earth,
And flaps his wings, to chase away
All gloom from our good friendship's day.
Heed not the Cynic's hopeless moan,
That "naught but bitter herbs are grown,"
Altho' by sorrow, low we 're laid,
There 's hidden blessings in the shade!
And kindly doth "Our Father" stay
His rough wind, in the east wind's day;

So, while we hold to life's sweet dower,
Oh, let us make each thorn a flower!
For Time moves on with rapid force,
Nor joy, nor sorrow stays his course,
Hastening us onward to the "Bourne"
From whence no traveller can return.

Mount Royal Vale, Que. —GRANDMA GOWAN.

CLIMBING ROSES.

IT is not every one who can afford to build and furnish an elegant home. The adornments of art are very expensive, and come within the reach of the few rather than the many, but Dame Nature is kind to all alike,and distributes her choicest decorations with a lavish hand. The dahlia and the carnation, the rose and the lily grow with equal beauty and fragrance in the dooryard of the poor widow and in the garden of the wealthy lord, if only it receives equal attention. Therefore, in drawing the attention of the readers of the CANADIAN HORTICULTURIST to such adornments, we are placing before them objects which may be attained by all, and which have the power to transform many a cold, uninviting exterior to a place of beauty.

In Great Britain the rose grows to its greatest perfection, so that the "rose of England" has become almost a household expression, but many varieties are too tender to endure our Canadian winters, and can only be grown under glass. Among the climbers there are many that will fail utterly if planted outside here, as for instance, the *Ayrshire* roses, which are a class of rapid growers, and much used in England to cover unsightly buildings, and the *Banksia* roses, which have very small flowers like double cherry blossoms and a violet perfume. There is another class against which our readers need to be warned, viz., the "many flowered rose" (*Rosa Multiflora*), one variety of which has been much sold in Ontario by agents from extravagant colored plates. We refer to GREVILLIA, or "*Seven Sisters*," which has double flowers borne in clusters, that in a picture looks very attractive; but really, the flowers are small and possess little beauty, besides it is too tender for our province.

Fortunately we have in the *Prairie rose* (*Rosa Setigera*) a class of hardy native climbing roses, often found growing wild in Michigan and the Western States, which we may plant with confidence. Our colored plate, for this month, represents two of the more commonly known roses of this class, which are favorites everywhere on account of their hardiness, free blooming and the fact of their flowers appearing just after the other varieties are nearly over. They are the well-known QUEEN OF THE PRAIRIE and BALTIMORE BELLE, varieties, that were raised in the year 1843 by a rose grower named Feast, in Baltimore, from seeds of the wild Prairie rose, crossed with some European variety. These two, the former red and

the latter white, when grown near each other upon the same porch, or with intertwining branches, heighten each other s beauty by contrast. These roses are both of rapid growth, and may be employed to advantage for covering any unsightly objects, as walls, old trees, old buildings, etc.

The following is a full list of the most desirable roses of the Prairie class, with the description added, according to Mr. H. B. Ellwanger, in his book on "The Rose":

ANNA MARIA; vigorous, pale pink, very few thorns. Grown by Feast in 1843.

BALTIMORE BELLE; vigorous, pale blush changing to white. Feast, 1843.

GEM OF THE PRAIRIES; free, believed to be from Queen of Prairies crossed with Madame Laffay, rosy red, occasionally blotched with white, large flat flowers, slightly fragrant. Raised by A. Burgess in 1865.

QUEEN OF THE PRAIRIES; vigorous, rosy red, frequently with a white stripe, medium or large size, double, foliage large, five leaflets, quite deeply serrated. Feast, 1843.

TRIUMPHANT; vigorous, rosy pink, medium size, double or full, distinct, seven leaflets are common. Raised by Joshua Pierce, of Washington, D.C., in 1850.

GRANDMA GOWAN.

FOR many years the poems by this talented lady have adorned the pages of THE CANADIAN HORTICULTURIST. Anyone having the least appreciation of true poetry, cannot but discern the poetic genius of the author of these sparkling gems. Our readers will be anxious to know something of the person who so often contributes to their pleasure, and to meet their wishes we here present an engraving of her face, and a few scanty notes of her personal history.

Mrs. Jessie Gowan's biography is somewhat of a romance. Little inclined to tell us much about herself, she says, in reply to our request for some notes: "What can I say? Must I begin with my grandmother being an eloping, disinherited lady of high birth, and her daughter, my mother, marrying a landscape painter, and of my six brothers being noted in the city of Edinburgh, Scotland, for their high talents. Four of them were the 'Ritchie sculptors' and two eminent artists, one Alexander A. Ritchie, *nom de plume* 'Dot,' illustrator and designer, designed the stained glass windows of the Houses of Parliament, England. He died at the age of thirty-four, while his historical paintings were on exhibition at the Scottish Academy. My brother John died of yellow fever in the Governor's house at Trinidad, West Indies, while decorating the reception room artistically

"And what of sister 'Dotty,' your humble scribe? Well, she went to teaching school for a few years, then married Mr John Gowan, who was bookkeeper to Messrs. Cowan & Co., paper makers, Edinburgh, for over twenty years. Messrs. Cowan & Co. had possessions in the United States, and I went with my husband

to the States, also to Upper Canada. When the war of 1861 broke out in the States my husband went to the south with his regiment. In 1862 he died.

"I was invited by General Sir David Russel to take the management of a Christian mission of his, which I did for nearly twelve years. I then went to the far West to my married daughter. Five years later I came to Montreal, where I hope to end my days in peace and hope.

"I may say I had great encouragement in my love for scribbling from my dear friend Mr. James Ballentyne, author of "Castles in the Air," and other poetical works. I used to write for the *Child's Companion* when I was a girl, in the *Penicnick Journal*, the *Gillovedian* and the *Ladies' Journal*.

FIG. 1.—GRANDMA GOWAN.

"I am glad this talk of myself is over, and I hope, if you say anything, you will cut it very short, for I don't see anything at all interesting in my life."

Referring to the photograph, which she sent in response to a special request for it, she says: "What a toothless old thing my photograph is! I have a fine set of teeth, but when I first used them my dear boy cried and said he would never kiss me with them in. I threw them aside, declaring I would rather have his dear loving kiss than the best teeth in the world. I have kept my word and never used them, and never will."

The loss of her dear grandson Gowan Johnston, in Idaho—

"Gowan, with the golden hair—
Golden hair and starry eyes,"—
Vide Vol. 8, p. 216

was a great grief to Mrs. Gowan. He was a boy of remarkable promise, and had closely entwined himself about his grandma's heartstrings. His death took place last May, and, bowed down with grief, she wrote:

"My angel boy, my darling Gowan,
I feel thy presence very near,
I know thou seest poor grandma bowing,
Imploring strength her grief to bear.

"And we shall walk on streets of gold,
Hand-in-hand together;
Grandma will not be frail and old,
But strong and young forever."

Gowan Cottage, the home of Mrs. Gowan, is pleasantly situated in Mount Royal Vale, a suburb of Montreal, and here it is that she entertains her children and grandchildren when they come from distant Idaho, or New Mexico, to pay her visits that seem all too short.

She has passed the allotted three score years and ten, and will soon have no need to read our poor literature on fruits and flowers, for will she not have access to the celestial gardens and to the tree that bears the "twelve manner of fruits"!

Long may she be spared to us, and many be the opening odes prepared by her for future volumes of our journal.

THE RUSSIAN APRICOT.

THE *American Garden* gives a good deal of space to the Russian Apricot, and from the correspondence of various correspondents concludes that it is not an entire failure. Its conclusions are that it is somewhat hardier than the peach, being able to endure one or two more degrees of cold, but on account of its very early blooming it is very liable to have its fruit-buds destroyed in the spring. Another difficulty in obtaining fruit from it is its great liability to the attacks of the curculio and the plum gouger. The seedlings are, many of them, worthless. We would therefore warn our readers against buying a tree that is simply a "Russian Apricot" without any name. The varieties that are considered the best are the Alexander, Nicholas and Budd. There are quite a number of other varieties, but they are less desirable. All these are inferior quality of fruit to the older varieties of apricots such as are grown in England and California, but by hybridization good results may be attained.

Our readers will have noticed in our "Letters from Russia" that all these varieties of Russian apricots, brought out of the Mennonites, are from Southern Russia; while some varieties, grown farther north, are much hardier and of superior quality.

There is also a variety brought from China, known as "Shense" which is very promising.

SELLING FRUIT ON COMMISSION.

OF late years this mode of selling perishable fruits has come into very common patronage among growers. The necessity for quickly disposing of fruit, and the difficulty of getting a connection with retail shops for such a short season, has brought this about; and, no doubt, very much fruit thus finds its way into market, which, only for the commission merchant, would have perished in the orchard. This middle man, therefore, is a benefactor, and his usefulness should not be under-estimated. But, in an experience of twenty

years growing and shipping fruit, the writer has always found the net returns from commission salesmen very far below those from direct sales. This is accounted for in several ways. First, the commission agent never knows what quantity of fruit he will have to handle until the arrival of the train, and he is therefore unable to make sales in advance. All must be sold at some price, or the whole may be wasted. The result is that there are great gluts in the height of strawberry season, raspberry season, and so on through the list. Fruit is sold at an awful sacrifice, scarcely paying the shipper for gathering it, when at the same time there may be a famine of the same fruits in many a small town, not fifty miles away. Secondly, we find that commission men often buy on their own account, and in that case always sell such purchases before that consigned; the latter must take the poorest chances, and sometimes be dumped, while waiting for its turn. Thirdly, many commission merchants consider it the lawful thing to sell all consignments to themselves at the very lowest market price, in order to fill orders, or to be used for their own retail sales. From this price they deduct the commission, and in consequence the shipper gets a very small net sum for what might perhaps, if a fair chance were given it in the open market, bring a high price. For instance, a grower once forwarded a quantity of apples to a commission merchant (not in Toronto) and received an answer to the effect that they were worth $1.12 to $1.25 per barrel. Not being satisfied he journeyed to the city, and actually bought his own apples from the salesman at $2.25 per barrel. In an hour or two he returned, undisguised, and, on enquiring the state of the market, was informed that good apples realized $1.00 and $1.25, very prime as much as $1.50.

What remedy to propose, or to practise ourselves, is a perplexing question; but there is no doubt that selling direct to a reliable retailer is a step in the right direction. But what is to be done with the surplus on those days when there is more than can be sold in this way? At present there is no help, it must go to the commission house.

The auction system has been worked with great success in England, and although a former attempt to establish it in the city of Toronto was a comparative failure, that does not prove that it might not be a success. Surely an open sale would be more in the interest of the shipper than the present mode of shipping indiscriminately to commission merchants. What do our readers think on this question?

MR. PERRY ON GROWING STRAWBERRIES.

MR. PERRY, a noted Ohio gardener, has lately published a book on How to Grow Strawberries, from which the following extract is made :—

We may safely say that the total value of the crop from several rods less than half an acre at wholesale prices was $287. No attempt was made to get the last dollar out of them, or the receipts might have been pushed up to

$300. The exact yield in bushels was over 100, or considerably over 200 bushels per acre. We sold to dealers only, or to families who wanted a half-bushel drawer. I fixed the price of our best selected berries at $3.20 a bushel, and of the small ones for canning at $2, and held it there without any regard to how low others were selling. Our town people after the first day took all we had, so that we did not have a single quart of berries spoil after they were picked.

Nothing in the world but extra quality gave us this good market in this season when berries were so plentiful. The markets were all glutted with common berries; but such as ours were not crowded in the least, and never will be. I went through the market in Cleveland during the best of the season, and through most the fancy groceries on Euclid Avenue: and in all that great city there was not half a bushel of berries that would match what I was furnishing to our grocers.

I drove to Akron (12 miles) with three bushels, to see what I could do, not dreaming that Hudson would take all we had after that. Before I got there I met men returning who said I might as well turn around, as Akron never knew such a glut of berries before, and no more could be sold at any price. But I went on. I thought to myself, "Here is just the chance I want to prove—whether or not excellence pays." I drove up before a grocery, the owner of which I knew appreciated a good article. I found him at his desk, and it was with much difficulty that I at last induced him to come out; he was utterly sick and disgusted with berries. But he finally came. I uncovered them. He bought them. I went home. Before night of that same day he wrote me to bring him four bushels more of these berries, offering an advance of twenty-five cents a bushel, and one dollar if his market should recover any so that he possibly could. But our home trade wanted them all, and I did not go to Akron again.

As for cultivation to raise such fruit, we set out the plants as early in the spring as the ground was fit to work, and let the runners grow as soon as the plant was able to throw out strong and thrifty ones in abundance, which was about the 20th of June. We went over the piece two or three times, training the runners a little, after they got well started, so they would as soon as possibly cover all the surface with plants. We cut the runners just near enough so they would not cross and get mixed. About the middle of October, we stretched lines through between the rows; and one man with shears cut runners, and another, with a hoe, cleaned out paths sixteen inches wide. This left two-thirds of the ground covered with plants. Next we went through these plants and took out the old ones set in the spring, all the little weak ones, and enough of the strong ones so that what were left stood not less than six inches apart on an average.

I am more than ever convinced that the very heavy manuring practiced by some is all unnecessary on good soil where clover is grown in rotation and the best of tillage is given; also that fresh manure plowed under is better than rotten manure harrowed in on the surface. The latter will be more likely to grow an excess of vines, on my soil, with small fruit yield; and the former moderate vines and abundant fruit.

TWO WEEKS AMONG THE OHIO STRAWBERRY GROWERS.—II.

ON the morning of the eighth of October Mr. Crawford and I left Cuyahoga Falls by rail for Medina, Ohio, on a visit to A. I. Root. A portion of the country between these points is very picturesque, resembling many parts of Canada.

The first thing that strikes the traveler on leaving the cars, at the Medina station, is a large factory with the inscription cut in a large block of freestone, inserted in the building, "In God we Trust." Near this building we saw a person coming, when Mr. Crawford said to me "There is Mr. Root himself." He recognized Mr. Crawford and surmised who the other was. Such a greeting! It was quite in keeping with what we might expect from a man who would place such a motto on his building as the above.

After tea, we had a walk through his vegetable garden which is a large one. There had been no frost then to do any harm to the most tender plants in this portion of his garden, for it is the highest point on his land. He has a windmill and a tank which holds 360 barrels, with pipes laid all over his grounds and to his factory also. Mr. Root has in his employment 150 men and women, all professing Christians, and to his credit be it said, he will not have a man in his employ who will drink any spirituous liquors, or smoke tobacco, or use profane language.

All his workpeople have half an hour at noon each day to read the Scriptures and a talk thereon, also an early closing of work each Saturday evening. We remained with him over night; the next morning we went with him over his small-fruit grounds which are large and well kept. He has all the small fruits usually grown by nurserymen, but I think he does not set any plants except strawberries, and of these he has all the popular kinds.

Both Mr. Root and Mr. Crawford have adopted a new plan of propagating strawberry plants, by making beds six feet wide and the length needed. The soil, in these beds, is made very rich. On the top of this is put fine clean sand about one inch deep, which is kept damp. The plants, as soon as formed on the vine, without roots, are taken off with about an inch of the runner attached, pressed into the sand in rows about three inches apart. These beds are covered wirh cotton shades, which are kept on till the plants are rooted. The sand must be kept moist all the time. I saw the plants growing in these frame beds at both places. They were better plants than those grown the usual way. There is no patent on this plan and I would advise others who wish to propagate plants quickly to try it.

If spared, I will write more about my rambling by and by.

Granton, Ont. JOHN LITTLE.

LAST SEASON'S FRUIT CROP.

IN scarcely any section of the province can it be said that the apple crop has been an abundant one. The trees blossomed with great promise in the spring, but a blight, apparently caused by the cold, wet weather, sadly diminished the chances for a heavy crop of fruit. In the extreme south-west the leaves of apple and pear trees assumed a rusty reddish color, and the newly-formed fruit dropped in considerable quantities ; and in many other localities the fruit dropped while yet immature. In the counties of Essex, Kent, Elgin, Lambton and Middlesex the apple crop was nearly an entire failure, and of other fruits there has been not more than a sufficiency to supply local demands. In most of the West Midland counties there has been a small surplus of winter apples, and there as well as in the Niagara peninsula pears, plums, cherries and grapes and other small fruits have been moderately plentiful, but grapes are the only fruit of which any considerable shipments have been made. All variety of peaches were scarce, although occasionally an extra sample has been produced. Apples were a good crop in the counties of Grey, Bruce and Huron, and also moderately good in Simcoe. From the first three of these counties large quantities have been shipped at good prices. From the township of St. Vincent (Grey) it is stated that fifteen thousand barrels have been shipped. Pears were moderately plentiful also, and have generally turned out better than apples. Throughout the eastern counties there has been a small surplus of apples, and other fruits have been about adequate to the demand. Winter apples vary greatly in size, shape and quality. The fall varieties are generally uneven in shape and of scabby appearance, but the supply has been moderate. The general appearance of fruit trees is satisfactory, very fair growth having been made, Blackknot on plum and cherry trees appears to be gradually increasing, and in some districts trees have been almost exterminated by it. Every possible precaution ought to be taken to prevent its encroachment on districts at present unaffected.—*Bureau of Industries, Bulletin 35.*

THE MEETING OF MICHIGAN FRUIT GROWERS.

SIR,—As I cannot well manage to attend your meetings which are always so full of interest to me, I will try and comply with your request, and send a brief summary of our meetings at Kalamazoo the first of the month. I did not get there to hear the President's address. In the report of the committee sent to Chicago to take part in the organization of horticulturists for the WORLD'S FAIR in 1893, they made a strong protest against the schedules of Department " B. Viticulture, Horticulture and Floriculture." Mr. Sanfield explained that it is proposed to divide this Department into groups thus :— Viticulture, fourteen classes ; Horticulture, four classes, vegetables only ;

Floriculture, twelve classes; Arboriculture, three classes; Pomology, four classes; Appliances, six classes. The special faultiness of this was shown to be the great prominence and diversification of the grape culture groups (which include seven classes wines and brandies with appliances for expressing juice of the grape, fermenting, stoning, racking, bottling, and packing), the subordination of pomology, the restriction of horticulture to the kitchen garden, etc. Strong resolutions were passed condemning this wholesale advertising of Californian wine-making. I enclose herewith copy of circular sent out to other societies, also copy of the objectionable grouping and classification of Department "B."

The evening of the first day was mainly devoted to the discussion of the FORESTRY question, with various suggestions for encouraging planting and preserving forests, particularly on our poor sandy lands. Several very interesting papers on forestry were read.

The morning of the second day was devoted to celery culture. Two interesting papers were read relating to its culture, storage, etc., also giving description of soil (marsh land muck, with loose sand and gravel bottom), preparation, etc., and one paper on its cultivation in Iona, showing that Kalamazoo was not specially favored above all other places, but intelligent work brought prizes from several State fairs over that grown in the latter place. Without attempting to follow the order of the work, I will only refer to a few things which seem to have especial interest. One of these was Prof. Cook's report of the operations of the currant borer, of which he described three distinct varieties whose work was essentially the same, that is the depositing of eggs in the tender branches, the worm developing in the pith and killing the stalk. He recommended the cutting off of all such dead stems as far down as they were injured, and the burning of the brush to be done just before the opening of leaf. This would ensure comparative freedom from the insect and worm, and give good crops.

INFLUENCE OF STOCK ON THE FRUIT.

Mr. Beecher, of Flushing, read a paper on the effects of stock on fruit, in which he gave detailed experiments and results, extending through a period of twenty to twenty-four years. He worked our tender or poor-growing varieties or hardy varieties that were peculiar for strong or thick matted roots. Those top-grafted on seedlings, were not uniform in strength of growth or hardiness, on wild or cultivated varieties of crab, haw, etc., not at all satisfactory. Duchess of Oldenburgh gave strong deep growing roots with healthy stock. Talman Sweet, fibrous good feeding roots, but his best results were from those worked on the Liscome apple. After twenty-four years' trial there was no difference in measurement of stock and graft, and twelve trees did not vary two inches in diameter.

Mr. R. Morrill, of Benton Harbor, said that hearing the above called to

mind a fact in the same line that he had never thought of before. Several years ago he had occasion to regraft a promiscuous orchard. He had in mind Northern Spy worked on Talman Sweet and Rambo trees; and though his attention had not been called to it before, he remembered that the crop on the trees worked on Talman Sweet was heavier and fruit larger and more fair than that on the trees grafted on the Rambo, and this difference would amount to several dollars in value of crop on each tree for one year. This being true, how great would be the difference in the value of an orchard of one hundred trees during their natural life!

Another member spoke of an orchard mainly of Baldwins, Greenings, and Golden Russets top-grafted on Colvent stock twenty-four years ago. The Greenings bore one good crop at the age of twenty-one and no other, but Baldwins and Russets none at all, yet the trees were large, vigorous and healthy. He asked if this was attributable to the Colvent stocks. None could answer. It occurred to me that here was a good field for investigation. Have any of your fruit growers any experience in this line? In planting an orchard shall we buy all Duchess or all Talman Sweet or Liscome and then top-graft? Was it a fatal mistake grafting that large orchard on Colvents? Can anyone tell?

In conclusion let me say that from the discussions on cut worms, curculio, borer in peach, apple, and currant, army worm, moth, yellows, black knot, etc., that the golden harvests of our friends in the west part of the State are the price of eternal vigilance and untiring industry, and perhaps that the same intelligent labor would develop many other places where fruit growing would be profitable, though perhaps not to such an extent as there.

Port Huron, Michigan. L. B. RICE.

LETTERS FROM RUSSIA.—V.

BABUSKINO OF GRANDMOTHER APPLE.

THIS Russian apple may be classed with the best winter varieties. I think it is known in America, perhaps under some other name, but with us this is its only one. For localities, where the high winds prevails, there is no better variety than this, because the fruit has such a tight hold upon the tree that the most vigorous storm cannot knock it down.

The tree is a spreading grower, has a large leaf, is hardy and very productive. The fruit, which hangs firmly by its stem, may be gathered about the first of October, at which time it is quite green and flavorless. About Christmas time it becomes a light yellow color, with a little red, and by the spring it becomes a rich yellow with a deep red blush, covered with small russety dots. It keeps in good condition until the end of June and even later. At maturity, this

apple has an excellent flavor, with an especially agreeable degree of acidity. The flesh is very juicy and aromatic. It is little affected by the curculio, probably because of its thick skin.

As yet, this apple is not very widely disseminated in Russia, but those fruit growers who have found out its merits prize it above any other. I am of the opinion that in Canada, also, it would soon become the chief market variety; therefore, unless you have it already, I will be glad to send you some scions.

THE HAMBURG PEAR.

This pear is growing in the Chernigov Government, having been brought there from St. Petersburg. It is a pear of the Bergamot type, not large, yellowish green in color, with russety dots, juicy, of very pleasant flavor, and ripens in September. It may be kept in the cellar for about three or four weeks.

As there is such a small selection of really good pears that can endure severe cold, the Hamburg has considerable value for horticulturists in cold countries. It has been well tested in the Chernigov Government and has been found to be perfectly hardy, while most other varieties entirely succumb. This is explained by the fact that its flower-buds are firmly closed and therefore not sensitive to the action of the frost. I have sent you cuttings of this variety.

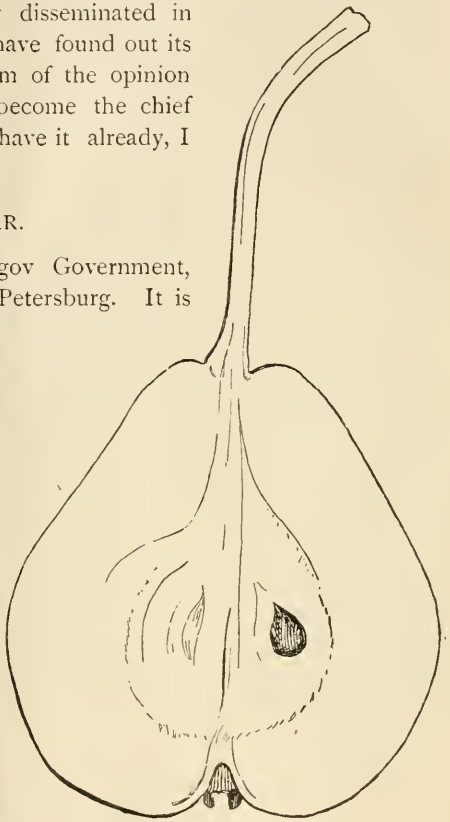

FIG. 2.—THE HAMBERG PEAR.

Rovno Wolinia, Russia. JAROSLAV NIEMETZ.

New or Little Known Fruits

Persons sending in samples of New Fruits to the Editor for notice are requested to include at least three specimens. Great care should be taken to prevent them from bruising in transit.

THE AUNT SALLY APPLE.

SIR,—I had a call to-day from Mr. Slaight, Inspector of Mines for Ontario, and a fruit grower on the Lake Erie shore. I showed him some specimens of a local apple known by the jaunty name of "Aunt Sally," saying that I thought of sending you a sample. He told me by all means to do so, as it was a fine, crisp, juicy apple. This apple is highly esteemed in this locality as a fine cooker and a very fair keeper. It is grown by Mr. Wm. Bailey and two or three others in this neighborhood, being propagated by grafts from the original tree which is supposed to have been a seedling grown by Mr. McGee (whose wife's name was "Sally"). Mr. Bailey can easily get the same price for this fruit as for his Fameuse apples of which he always grows some fine specimens. I will be glad to hear what you think of the one sent by same mail, which is neither the largest nor smallest but a fair medium specimen.—W. H. WYLIE, *Carleton Place, Ontario*

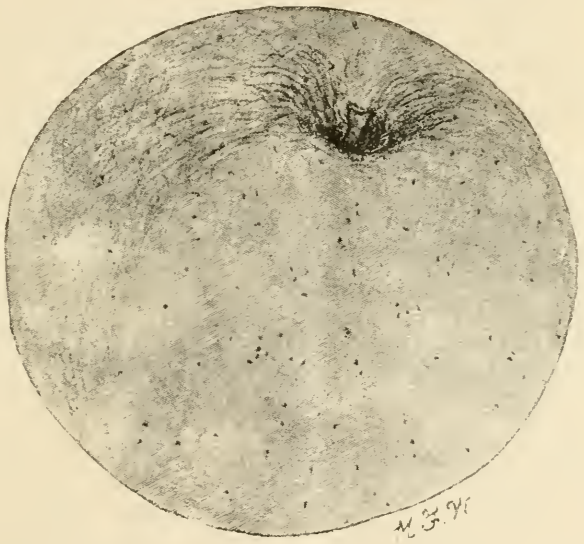

FIG. 3.—THE AUNT SALLY APPLE.

The apple is rather an attractive one, with its light yellow skin, tinted with red on one side. It is a little small to be a valuable cooking apple, but as a desert apple it might become a favorite.

Description.—Size, below medium; form, roundish oblate; stem, short in an even coirf of average size; calyx, nearly closed in a moderate sized slightly wrinkled basin; skin, light yellow with small brown dots and a light crimson cheek with spots of dark crimson; flesh, creamy white, fine grained, tender, crisp, somewhat juicy, and of a brisk, slightly aromatic, very agreeable flavor; very good to best; season, February.

THINNING OUT FRUIT.

OCCASIONALLY someone refers to this subject as something new, while it is as old as horticulture itself. I have practised it for more than forty years, and never yet failed to gain by it. Most people maintain that it might do on a small scale, but that it would never pay in extensive orchards. I have the proof that it will. Yesterday afternoon five trees were gone over in my orchard, two Mt. Henry Pippin and three Newtown, from two o'clock until six. This would be at the rate of twelve trees in ten hours, the hours of a day's work, costing say $1, which will be a little over eight cents per tree. Now, these trees will average about six bushels apiece if the season is favourable, and there will be but very few culls. The difference in the price of one bushel of these apples will more than pay for the thinning. It is true not everyone will handle himself on a ladder or tree as I do, but then we will allow one hour more to the day, as on the farm the ten-hour system is not so rigidly adhered to as with mechanics. Supposing I had a thousand trees like these and had to pay $85 to have them gone over, the crop being 6,000 bushels. If I could get but ten cents more per bushel, which is quite a low estimate, it would make $600, which is pretty good pay, I should think. What I left on will measure as many bushels when harvested, as if all had been left on the trees, although I took at least three bushels off each tree, of course in all cases the small, deformed, rusty and wormy ones. When it comes to picking them the difference in work and sorting will nearly make up for the thinning. But this is not all, for, by this thinning out, the trees are relieved of quite a burden; they will not have to mature the seeds of all those taken off, which is a great item. Every scrubby, small apple has about an equal number of seeds with the largest, and seed-ripening is the great tax on the vitality of the tree. Another feature about it is that in a drought like this it may prevent the premature dropping of the fruit, so much complained of in this region. At my work alluded to I found that the fruit let go its hold much too easily to promise staying there until the proper time, and believe that my thinning will save what are now left. A few years ago there were scarcely any codling moths here, no black-rot nor scab on the apples, but they are all coming, and spraying will have to be resorted to in coming years. If I had an orchard of ten thousand bearing apple trees that were overloaded, they should all be thinned out. Another advantage of thinning I did not mention, is that it will give us apples every year, unless an unusual spell of weather destroys blossoms. These off-years, as some call it, don't happen in my orchard. Have had pretty regular crops for ten years, the only miss being when a tree was overloaded, and I failed to thin out. Invariably the following year was a miss, which is quite natural; for a tree cannot bear an overload and at the same time store up blossom buds to do the same next season.—*S. Miller, Montgomery Co., Mo.*

PEARS FOR PROFIT.

A SUCCESSFUL Hudson river grower of pears says, in the *American Garden*, that the conditions for successful pear growing are so local that there is little danger of over-doing the business. He advises a strong loam, heavily fertilized, and obtains the best result by using both stable and commercial fertilizers. Of the latter, he uses chiefly unleached ashes and prepared bone. He believes in cultivating the pear orchard throughout its entire existence, ceasing, however, about the middle of July of each year. With regard to the question whether standard or dwarfs are more profitable, he thinks that most people will succeed better with standards, but, upon right soil, and with the right man to handle them, dwarfs may be the more profitable. Mr. Powell emphasizes the importance of handling pears for market in the following words: "Pears are ready to pick as soon as the stem parts readily from the spur when the fruit is raised up by hand. The entire stem should always be left on. If you are growing pears for a fine market, as I am doing, the fruit should be ripened under cover by piling them in a dry room and covering them with blankets. A high and rich color and the very highest flavors will be secured in this manner. As soon as the color becomes pronounced, place them upon the market. Fine fruits should be marketed in small packages, for it then ships better and is more attractive. I have exported pears to a large extent, and I find a good and growing foreign market. Even in France the demand for American pears is considerable. Of the medium size or small pears, as Clairgeau and Lawrence, I place four dozen in a box for exportation, and of the larger kinds three dozen. The fruits are wrapped in paper and packed in layers separated by excelsior.

My choice for standards is as follows: Tyson, Clapp, Bartlett-Seckel, Sheldon, Anjou, Bosc, Clairgeau and Lawrence. For dwarfs I have had best success with Bartlett (preferably double-worked), Anjou and Duchess. For export I grow Bosc, Clairgeau and Lawrence."

It appears to the editor that two excellent summer pears are left out of account, viz., Summer Doyenne, which ripens about the 20th of July, and is a pear of good form and color; and the Beurre Giffard, which comes in early in August, quite as soon as the Tyson, and very much its superior in appearance. The Seckel we would leave out of the list altogether. It is too small for any Canadian market, and we do not care to be the one to try to make so small a pear profitable when there are so many of finer appearance, even though they are behind it in quality.

FRUIT DANGERS AND REMEDIES.—An excessive amount of fruit, or if eaten in an unripe or over-ripe state, produces various disturbances in the system, chiefly so because of its tendency to ferment and decompose within the digestive tract, and to produce stomach and bowel disorder. If these disturbances are not too

great, or too prolonged, they need occasion no special anxiety. A dose of castor oil, to which a few drops of laudanum has been added, is usually sufficient to clean out the irritation "debris," and in a day or two the natural equilibrium is restored. It there is much griping and pain with the movements, and these become too numerous to be comfortable, the dose of oil should be followed by curtailing activity—by quiet and repose—by a diet of meat broths, containing rice, barley or sago; by rice and milk, milk toast, etc.—*Medical Classics.*

FRUITS AS MEDICINE.—Fruit is more than a luxury, it is a necessity, in some cases. We cannot give too much emphasis to this. I am almost a crank on this subject. For several years I have had fruit, in some shape, constantly on the table. A few years ago I was thought to be subject to a hereditary disease which seemed sometimes to almost deprive me of my senses, and at times could not do mental work on account of severe headache. It was suggested to me that I adopt a fruit diet, and I have eaten fruit every meal since, and the result is good. Since putting this in practice neither myself nor family have been sick, and have paid no doctor's bills. I am not a vegetarian, but am in the habit of eating meat. I believe we should use plenty of fruit, as I am of the opinion that it is conducive of good health.—*Prof. Stockbridge, Indiana Hort. Society.*

REASONS AND RULES FOR CURVED DRIVES.

THE chief reason why drives and walks should be curved in all places which make any pretence of natural landscape, is because such drives increase variety; and variety here as elsewhere, "is the spice of life." There are three leading reasons why a curved drive augments variety. 1. It presents different views from each part. 2. The drive is hidden from itself: one does not look ahead over a straight and monotonous roadway. 3. The curves augment variety because they force upon the rider a constant change of direction and position.

I often meet persons who fail to recognize curved drives and walks as a part of a natural arrangement. One can only reply that drives and walks are at best almost entirely artificial, and the best we can do with them is to throw them into natural-like and varied forms. We simply treat an artificial object in a natural-like manner. Curves are universally present in nature. Rivers and creeks and ravines follow graceful curves. Even when they appear at sight to be straight a casual observation brings out flowing and varied lines of margin and direction. Even cow-paths are not straight: and I have often remarked to students that the trails which they make across large lawns as short-cuts are always curved, and these curves are many times sufficiently pronounced to answer all the purposes of

landscape gardening. I have often chalenged a teamster to drive in a perfectly straight line across an open ten acre field, without taking sight upon a fixed point. Not one has done it.

But it is not every curved drive which is attractive ; in fact, I often think that more drives are spoiled by curves than by straightness. A straight drive always has the merit of directness and convenience, while the unusual curves and indirectness of a poorly conceived curved drive distract the attention and obscure any merits it may possess. A few simple and general rules may prove useful.

1. All curves should appear to be necessary or useful. This rule really determines the whole character of the drive. The rest are corollaries.

2. Avoid balanced curves—a cork-screw or snake-like moonti.

3. The curves should be direct ; their general trend in the direction of the object to which they lead. The drive should go where it appears to go.

4. The successive parts should be hidden from each other by tasteful plantings along the borders.

5. The branches of a drive should diverge strongly at their juncture, and they should usually be wholly or partially concealed from each other by plantings or other objects. If drives diverge, they appear to lead in nearly opposite directions and therefore have the appearance of usefulness. If the parts have the same direction, one portion appears useless. A broader statement is the following :

6. No two drives or parts of drives, should be parallel or appear to lead to the same object.

7. The nature of the curves should conform somewhat to the character of the landscape. In rough or bold grounds drives may have much bolder and more spirited curves than in tamer places.—*American Garden.*

✳ Flowers ✳

THE NIGHT-BLOOMING CEREUS.

THE Night-flowering Cereus (*Cereus grandiflorus*) has gained a fame which entitles it to prominent notice, and plants might well be included in every garden, for its flowering in a source of interest to the least observant persons. In the character of producing its blooms at night, it is not alone, as several of the slender-growing species have a similar habit, but none equal this in beauty and fragrance.

"That flower, supreme in loveliness and pure
As the pale Cynthia's beams, through which unveiled
It blooms, as if unwilling to endure
The gaze by which such beauties are assailed."

FIG. 3.—THE NIGHT-BLOOMING CEREUS.

The flowers are really magnificent, and a plant with a dozen or two expanded at the same time has a superb appearance, particularly in the early evening when the flowers first expand, and the powerful fragrance they emit is very agreeable, having been aptly compared to vanilla. The stem is nearly cylindrical, with a few faintly marked ridges bearing small clusters of spines, and rarely exceeds one inch in diameter, but attains a length of many feet, freely branching. The flowers vary in size from six to twelve inches in diameter, the usual size being eight or nine inches. The sepals are narrow, acute and spreading, about one-quarter of an inch broad, four to five inches long, and thirty to forty in number, forming a beautiful fringe round the broader pure white petals, which are more in the form of a cup, the stamens being exceedingly numerous, with very long filaments.—*Lewis Castle* in *American Garden.*

WHITE ROMAN HYACINTHS should be planted as soon as received in flats or boxes, and placed either in a cold house or frame until they are well rooted. They must be kept shaded during this time, after which they may be brought

into a house where the temperature ranges from fifty to sixty degrees. When far enough advanced transpose into a warmer house for forcing; Roman Hyacinths being such easy forcers a constant supply may be had during the winter months, by regulating the growth according to your wants. Blue and Rose Roman Hyacinths should have the same treatment as the white, but they will not force as quick nor as early; consequently they should remain a longer time in a cold house or frame before they are brought into a hothouse for forcing.—*Florists' Guide.*

WINTER CARE OF HOUSE PLANTS.

AIM to secure the best light, a south or east window being much better than a north or west.

2. Secure as moist air as possible, by keeping a kettle of water on the stove at all times will greatly help. Sponges soaked with water and hung in the branches of the larger plants will be found a great help as the moisture comes so directly in contact with the leaves. If one can have a plant shelf made water tight, and with board raised a couple of inches around the side to make a sort of box, and fill with soil well watered, it will save much time in watering the plants in pots. Moisture supplied in above ways prevents the red spider's depredations as well as contributing to the plant's healthy growth.

3. Air the plants every day no matter how cold, but do not commit the mistake of an amateur whom I once knew of opening the window directly on the plants the coldest days which resulted in their freezing. Draughts must be avoided. Supply the fresh air by opening a window or door of an adjoining room.

4. Secure perfect drainage for all subjects. This is very important, and is the cause of perhaps one-half the ill health of all window garden plants. It is of much more importance than good suitable soil.

5. When water is given, do it thoroughly, and remove promptly from the saucers of all plants which have been over supplied.

6. Remove all faded flowers and leaves as fast as they show, and use the pruning knife where necessary.

7. In placing in the window take care that one subject is not crowded into another. One kind of plant leaves touching another often causes them to turn brown. The Heliotrope is an example of this.

8. Keep free from dust by frequent syringing and on smooth-leaved plants brushing off with a soft cloth. Always cover up plants with a paper in sweeping or dusting the room.

9. Allow no one to handle plants but the one who cares for them continually. It should be his or her duty to rapidly acquire the knowledge of best position in the window for each kind, and no one should be allowed to move them. Plants are not made to be handled more than is necessary, but rather to be admired.

Nothing makes the successful cultivator more nervous than to see his fine specimens roughly handled by visitors who do not realize the harm, and for the most part will not take offence at being asked to desist.

10. Stir the soil in the pots frequently, using for a hoe, a hair pin, or table fork.

11. Keep free from all insects. Nothing is more indicative of a person's slothfulness than to allow plants to become infested with vermin. There are plenty of good remedies for all troublesome house-plant insects.

12. Keep pots scrupulously clean. Dirty pots invite vermin and disease to house plants.—*Warren E. Mitchell in Canadian Queen.*

TOO MANY WINDOW PLANTS.—Do not crowd your window plants. One handsome plant is worth a dozen crowded into the space one should occupy. Never turn your plants, if you want them to be strong and nice looking, and never move from one window to another. Do not wash them to death. Do not make the mistake so many amateurs make, of putting in too large pots. Give them, as nearly as you can, their natural condition, and let them alone.—*Report of Illinois Horticultural Society.*

✳ The Vegetable Garden ✳

HOW TO MARKET CELERY.

IN the preparation of celery for market all depends upon how well it has been grown and blanched, as no after arrangement will atone for the lack of these qualities. All green stems should be trimmed off, leaving the blanched portion and the heart fully exposed. In trimming off the roots a knife large enough to reach one-quarter around the plant should be used, so that four cuts will leave a perfectly square root one inch in length below the crown. In washing I use the common whisk broom, holding the stalk of celery in one hand by the root, top down, and brushing with the whisk and water until clean. To form a nice square bundle I have a board with pegs set (eight inches apart one way and ten the other), and place the stocks in the form tightly (in two layers usually), and tie with one string tightly around the square butts of the celery. This will not injure the stalks. I now revolve the board and tie another string at the top. So tied and packed solid in bulk, celery can be preserved brittle and tender for weeks if kept cool and away from frost.—*Theodore F. Baker, Cumberland County, N.J., in Farm and Home.*

STRIPED CUCUMBER BEETLE.

I HAVE tried the various remedies mentioned by you and other papers, such a Persian Insect powder, slug shot, etc., with little effect. Lime dust, however, does the business. I took several good-sized lumps of fresh lime and put them into a coffee sack. The lime soon begins to slack, forming a fine dust. By shaking the sack on the windward side of the plants, the fine dust settles on the under side of the leaves as well as on the upper side. I made three such applications, the dust being more than the bugs could stand. This remedy must be used with caution, as an overdose will injure the vines. Shake the sack at the side of the plants, not directly over them. The heavier particles of lime will then fall to the ground, and only the dust will reach the plants. The material costs but a trifle; it takes but little time to apply it—and it has done the work.—*E. H. Benedict, Nebraska.*

BLANCHING CELERY.—A crisp, delicacy of flavor seems to be only obtainable by a generous banking with earth. Previous to banking, tie the stalks in a compact bunch; the earth is then packed as high around the stalks as it deemed advisable. A simple way to prevent the possible objections in damp weather, that the stalks are crooked in tying or the stalks stained or nibbled by earth worms, is to take strips of straw paper, ten to twelve inches wide, and wrap each stalk in place of tying. A trowelful of earth will hold the paper in place when the banking can be done. The earth should be drawn up nearly to the top of the paper. Leave the base of the hill broad, so that more earth can be drawn up, if necessary.—*Canadian Ex.*

Forestry

DESIRABLE TIMBER TREES.

ONE of the most valuable native trees is the White Ash. The wood of this tree is always in good demand for oars, tool handles, etc., on account of its lightness, elasticity and strength, while its beautiful grain commends it for interior finish. It is a rapid grower on moist soils, and succeeds even on poor soils. A growth of ash has been known to realize for the planter a clear profit of $600 to $700 per acre on tracts of ten to twenty acres, from trees only twelve years old. As this would amount to more than fifty dollars per acre per year, aside from other considerations, the profit is a good one. Surely the rocky, hilly, and otherwise unprofitable lands could be, in this way, turned to a very profitable account. The only drawback would be having to wait for twelve or fifteen years for first returns. But they would then come with compound interest. The trees may be readily produced from seed, although the young trees of this and all other kinds needed for timber culture may be obtained from most of our larger nurserymen at very reasonable prices in large quantities.

The Catalpa is a soft and fine-grained timber. It is very popular on account of taking a beautiful polish. It is one of the most durable kinds of timber. It is a rapid, vigorous grower, with rather straggling habit when alone, but straight and upright when grown in groves or close plantations. Cabinet makers are learning its desirability for their work, and are using it to a considerable extent. Of the different species, the *Catalpa speciosa* is the hardiest and best adapted to the North, producing large white flowers, which give great beauty during the time of bloom.

The Willow is considerably planted, and can be grown profitably in situations too moist for the successful growth of other timber. It will, however, grow on poor or hilly spots. Its growth in such places may be not quite so rapid, yet it equals most other trees in similar situations. Its wood is used for furniture, for ox bows, for handles, and many other uses (especially basket-making) where strength, lightness, and toughness are desirable; its closeness and evenness of grain admits of a handsome polish. Its bark is in demand for tanning, and the charcoal from its wood is used in the manufacture of gunpowder.

The European Larch has been but little grown in this country, being a native of the Alps, the Tyrol, and other European mountainous regions. In point of extreme hardiness there is nothing to be desired, while it is a very rapid growing tree on land which is thoroughly drained, as are hilly and mountainous districts.

It is scarcely necessary to write at length of the profits to be gained in planting the American Sweet Chestnut and Black Walnut; both trees, besides pro-

ducing valuable and salable timber, will produce, in a few years, crops of nuts which will alone pay a good percentage of profit annually, while the trees, for the timber, will be constantly increasing in bulk and value.

Among the several other kinds of trees which may be grown for timber are the White Oak, Sugar Maple, White Pine, Elm, Butternut, Hickory, Cottonwood, Birch, Poplar, Box Elder, and the Soft Maple, all of which have their special uses. It need not be feared that timber culture will be overdone, for the distinctive American desire to get rich rapidly will prevent it for a long time to come. It involves the waiting (except in the case of nut-bearing trees) of from twelve to twenty years for returns. It would be well for young men, especially, to carefully look into this important matter. Though the first returns are slow, they are sure and very generous when they do come.—*David Z. Evans* in *American Agriculturist.*

FILBERT GROWING IN ONTARIO.

SIR,—Since the notice in your Journal of the nut question, parties have written to me for further information on the subject. Having only a dozen trees in bearing no attention was paid to them, and their bearing qualities can not be fairly estimated. We gather from two or three gallons on an average, once or twice as high as eight gallons. The trees are planted about twelve feet apart but have spread and intermixed, making quite a wind break. With care, cultivation and selection of nuts, one might expect much better results. Having about twenty young trees coming into bearing and some attention being now paid them, before long I may be able to make a better estimate as to bearing qualities.

Two springs ago I planted a quantity of nuts (kept dry in the house), a part only came up; but this spring the balance sprouted nicely up. From that I infer the nuts should be planted in the fall, like the peach and walnut. Having planted a good many this fall, should I succeed in raising sufficient for market purposes, will notify the public through your journal. Will also forward you for experiment in the spring some two-year-old trees.

Pelee Island. E. WARDROPER.

RAISING LOCUST TREES.

THE best way to raise locust trees from the seeds is to sow them in the fall and leave them to grow when they will. The locust is a quick grower, and when left to grow naturally the seeds germinate with a good deal of certainty. This is readily seen wherever a locust tree with ripened seeds has fallen and been left on the ground. In a few years there

will be a circular thicket of young locusts that have sprung up from the seed. If the seeds are sown in the spring, boiling water should be poured upon them, leaving them to soak a few hours until they swell. I, however, prefer sowing them in the fall and leaving them to the natural action of frost.—*S. S. N.* in *N. Y. World.*

FRUIT TREES FOR ROAD SIDE.—In many parts of Europe the public highways through the country are nothing more nor less than avenues of cherry trees, which often extend in straight unbroken lines, as far as the eye can reach. There we find the early and the late, the sweet and the sour cherries, and they seldom fail to yield full crops. It has always seemed to us that trees along the roadside were much healthier, generally, freer from insects, and give larger and better yields than the trees planted out in orchards as we came across them occasionally. We see no reason why we should not follow the good example, and line our roads with cherry trees also. All we have to do is to plant them, give them a good start, protect them while young in some simple way against injury by domestic animals, and then leave them to themselves, to reward us with bountiful crops year after year. Thus we might have fine cherries in abundance for young and old, and what a blessing it would be, especially for young America! Why not? Why should we continue to plant maple and elm avenues, when cherries give us as much shade, as much beauty, and the choicest fruit besides? Occasionally the pear, more rarely the plum and the apple are used for roadside trees in continental Europe. The reason is obvious. The apple is of too spreading growth for this purpose, while neither pear nor plum have the beauty of form, nor the utility as a shade tree possessed by the cherry. Some of our nut trees would also make admirable roadside trees. From New Jersey and Pennsylvania southward, in the coast states, the English walnut might be tried, and the Pecan, wherever it succeeds. The chestnut is perhaps objectionable on account of its low spreading growth when planted singly. The black walnut and hickory are fine for the roadside, and in some sections the persimmon might be tried.—*G R. in Popular Gardening.*

FOR a hedge in a wind-exposed location a mixture of Myrobolan Plum and Privet, two of the former to one of the latter is recommended. It is said to make a hedge sufficiently strong to resist cattle in a short time. If something of a more ornamental character is required, use the American Arbor-vitæ, selecting only single-stemmed varieties.

The Canadian Horticulturist.

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NOTES AND COMMENTS.

A HAPPY NEW YEAR to all our readers. And while we hail you all with our good wishes, we shall do our very best to make our little Journal a bright and cheery visitor to your homes.

At our excellent winter meeting in Hamilton last month, the minister of Agriculture kindly consented to bind in cloth two copies of our report for each member, thus really making each one a present of a book that will be worth his whole subscription money.

Surely under such liberal conditions our membership ought to be doubled this year and we ask every reader to help us by making known the benefits conferred on all members of our association.

THE BALDWIN APPLE IN ENGLAND.

NOTWITHSTANDING the fact that the Baldwin apple is acknowledged by both Canadian and English buyers to be inferior in quality to many other apples, yet on account of its good color, and its excellent carrying qualities, it always commands a comparatively good price in the British market. It is not a very hardy apple and therefore, in many places, it is supplanted by the Ben Davis, an apple of still poorer quality, but of fine appearance.

We are in receipt of a rather interesting chart from Messrs. Woodall & Co., Liverpool, showing the weekly fluctuations of the Baldwin apple, in the Liverpool market, during the past five seasons, the same based upon number one stock. As a rule it appears that the prices run highest in October, March and April, and lowest in November and December. The highest price paid for Baldwins during the past five years, was in April, 1890, when as much as $10.75 was paid per barrel for some samples from Maine, and over $8.00 for some from Canada. The next highest was for some Canadian Baldwins which in April,

1887, brought over $6.00 per barrel. The reverse of the picture is not so encouraging to shippers. The lowest prices paid during the same period were as follows : April 1885, $1.50, (an exception) ; November 1887, $2.50 ; November, 1888, $3.00 ; January 1889, $1.50 ; November 1890, $3.00. It is of course understood that there are not net prices, but the selling prices in Liverpool market.

It is gratifying to notice, however, that the export trade in apples is constantly extending, and the average returns are such as to encourage the commercial orchardist to take the best of care of his orchard, and put up his fruit in such a way as to command the confidence of the English buyer.

GOOD STRAWBERRIES.

MR. E. P. POWELL, writing in the R. N. Y., says he has tested a great many varieties of strawberries and concludes that no one is likely to go astray with the following list : 1, Bubach ; 2, Cumberland ; 3, Haverland ; 4, Sharpless. His soil is a strong clay.

NEW FEATURES AT FAIRS.

MR. A. A. CROZIER, gives in the same journal some hints of new departures in the management of fairs. He proposes that prizes be offered for such items as the following : 1. New fruit produced by hybridising ; 2. Display of wild fruits in greatest number and variety ; 3. Sample of wild fruit, showing improvement by cultivation ; 4. Exhibit showing benefits of treatment for apple scab ; 5. Collection properly named, of living branches of ten deciduous trees, by a boy or girl under twenty ; 6. Best essay on some branch of Horticulture by a boy or girl under sixteen ; 7. Largest collection of apples classified in order of merit ; 8. Exhibit showing the modifications of fruits or vegetables by soil or climate.

INGENUITY PAYS.

A LITTLE ingenuity and good taste often pays well in the preparing of fruit for market. A New York state grower is reputed to have received about half a cent each for his Bubach strawberries, by putting them up in paste board trays such as grocers use for lard and butter, 28 berries in each. He had them sold on commission and netted about half a cent for each berry.

The writer has, during the past season, netted about twelve cents a quart for raspberries when others were only getting about ten, by putting them up in pint boxes. This was not done through a commission agent, but through a retail merchant who found the pints just the thing for his trade. Several lots were sent to a Toronto commission agent, but he objected to handle a new size package not yet known to the retail trade, and sold them at exactly half the price of quarts. Of course this was a loss to the shipper, for the package is more expensive. But rightly handled, it would pay to use pints for raspberries, for they carry the fruit better, and retail at higher prices in proportion than the quarts.

THE BLACK KNOT.

IN bulletin 59 of the Michigan Agricultural College, Prof. Taft reminds us that in order check the devastation of our plum orchards, which will surely result from continued neglect, we must be vigilant even during the winter season, as at that time the old knots of the past year's growth ripen millions of spores which will each be capable of starting a new generation.

Every old knot, whether on plum or cherry tree, growing in fence corners or along roadsides, ought to be most carefully cut out, removing the limb some distance below the part affected, and burned as soon as possible before the spores have had time to float away to trees that are hitherto healthy.

In some cases, of course the trees would be badly injured by this cutting away of the knot, and it has been found that by cutting away as much of the knot as possible and burning it, and then painting over the wound with linseed oil, the fungus can be destroyed. Turpentine has been found still more effective, but it is injurious to the healthy portions of the bark, and must therefore be applied with great caution.

EXPERIMENTS WITH TOMATOES.

BULLETIN 21 of Cornell University, states that by trimming the vines of tomato plants late in the summer, a greatly increased yield of fruit can be obtained. In the experiments, the plants were headed back from three to six inches on all the leading shoots, July 28th and August 25th, and all the sprouts from the base of the plants were taken off. The labor was very little and the result was a decided gain in both earliness and productiveness.

FIG. 3.

There are some forty varieties under test at Cornell, but of them all the Ignotum, (fig. 3), stands at the head.

Another point clearly demonstrated is, that it pays to set plants in the open as early as possible. A batch of Ignotums were planted out on the 9th of May, and another beside them, on the 12th of June, and the difference in earliness was very marked, for by the 5th of September there had been gathered from the early set plants thirty-seven ripe fruits, and from the late set ones, only eight.

PAPER AS SUBSTITUTE FOR GLASS FOR HOTBEDS.

A FLORIDA correspondent of the *American Garden* says he has found either cloth or manilla paper *saturated* with pure *raw* linseed oil, the best substitute for glass for hotbed covers. Boiled oil rots the paper or the cloth, but cloth that has had two coats of raw linseed oil is both air and waterproof, and remains soft and pliable indefinitely. Paper, so prepared, is nearly equal to glass, admitting the passage of light quite freely.

PRICES OF APPLES.

MR. ROBT. BALL used to say that it never paid to ship apples to England when the price reached $2.50 in our own markets. He was one of the earliest apple exporters in the Niagara district, and his experience of an early day, applies equally to these times. Many of us would be money in pocket this season had we sold all our apples in our home markets instead of shipping them to England. Indeed it has been rather surprising that so many have gone over in a year of such scarcity at home. The English papers even tell us that they are surprised that so many apples have come forward after the tales of scarcity that had come to them from us.

As we might expect, prices in Liverpool have been gradually going down, while those in Montreal, Toronto and New York have been gradually advancing. According to late reports, Canadian apples were sold in Liverpool market, during the month of December at an average of $5.00 per barrel, while in New York city they are quoted at $6.00 to $8.00, in Toronto have even touched $4.50 per barrel, and have changed hands in Montreal at $6.00.

RASPBERRIES FOR HOME USE.

PRES. LYON, or Michigan, gives in the same bulletin the following as the best raspberries (of the Rubus strigosus type) for a succession for family use, viz : Thompson, Turner, Herstine, Golden Queen and Cuthbert.

Why he should give the Thompson as first early, instead of the better tested Marlboro', does not appear, for the former is a new variety, originating in Ohio not yet fruited long enough to have established a character. It does not seem to be as productive as the Marlboro' and is not any earlier in ripening. The fruit is bright colored, attractive and of good quality.

Of the blackcaps, (Rubus occidentalis), he gives the following selection for the family garden, viz : Doolittle, Hillborn and Nemaha, with Shaffer for canning. For market purposes he would substitute Gregg for Hillborn. Souhegan and Tyler, he says, are so like the Doolittle that there is practically no difference ; Nemaha and Gregg are also scarcely distinguishable. The latter he justly places at the head of the list for market.

TWO NEW STRAWBERRIES TESTED.

MANY of the reports of the Experiment stations have little of practical interest to us as fruit growers. The bulletins are so abstract that few practical men have time to wade through them to get any benefit. In this respect we have to make some notable exceptions and among them those from the stations in connection with the agricultural colleges of Michigan and Massachusetts.

We give one or two extracts from these reports, concerning two of the newer varieties of strawberries, viz. : the Bubach and the Parker Earle.

BUBACH, originated in Illinois in the year 1885, of the largest size ; form, roundish, broad, oblate conical ; color, bright crimson; a variety, which, though requiring a fertilizer, and lacking the firmness requisite for a distant market, possesses, with uniformly large size, such an assemblage of valuable qualities of both plant and fruit

that it has already assumed a high, if not a leading position among market varieties.—*Michigan Experiment Station.*

This promises to be a most valuable variety. The plant is vigorous, having large finely-formed berries, it is very productive and as yet entirely free from rust. Quality only medium, but far better than Crescent, Wilson or Warfield.—*Hatch Experiment Station, Mass.*

PARKER EARLE, a bisexual variety, received from northern Texas too late in the autumn of 1888 to gain more than a slight hold upon the soil in advance of winter. With only a slight mulch, the plants came out the spring uninjured, and formed a well-matted row during the growing season. This was left wholly unprotected during the past winter and has now very considerably excelled all others in the amount of fruit produced. Unless it shall, in the future, betray weaknesses not yet discovered, its bisexual character, together with its fine size, bright appearance and fair quality, must infallibly command the attention of planters, whether for the family or for the market.—*Michigan Experiment Station.*

A GOOD LIST OF BLACKBERRIES.

MR. LYON also gives the following list of blackberries, viz. : for family use, Lucretia (dewberry), Early Harvest, Kittatinny, Snyder and Taylor. For market, Early Harvest, Wilson, Snyder and Taylor.

We cannot understand his leaving out the Kittatinny for market, except on account of the rust. We have made it our chief market blackberry at Maplehurst for the past fifteen years, and on suitable soil have had large crops of immense sized berries. We prefer it to the Wilson, for, although the latter ripens early the season, it does not equal it in yield. It has of late been very subject to the Orange Rust, and we fear this will soon root out our plantation. On light sandy soils the Snyder grows very small, and is almost unsalable, unless in a very wet season, we therefore do not think much of it where the Kittatinny succeeds. Of course the great fault with both the latter and the Wilson is their tenderness, for they will not endure a climate which is too severe for the peach tree.

Question Drawer

FALL AND WINTER PEARS.

SIR.—Would you please tell me what you consider are the best six varieties of pears for marketing in the late fall, and what six are best for winter market.—E. E. McCOMBS, *Essex Centre.*

The varieties of fall and winter pears which would suit best in our locality might not be the best ones for you. But the following six are all excellent fall pears, and ought to give you satisfaction, viz. : Beurre d'Anjou, Duchess d'Angouleme, Doyenne Bussock, Howell, Kieffer, and Louise bonne de Jersey.

Of winter pears, that are first-class for market, there is a much more limited number from which to select. The following are some of the best : Lawrence, Winter Nelis, Josephine de Malines, Easter Beurre, Glout Morceau and President Drouard.

GRAPE CUTTINGS FROM THE RHINE.

2. SIR,—I am going to put out next spring four acres of grapes. I will have the seedlings sent from my home on the Rhine of Germany. Could your book give me a little information about sending and packing the seedlings for this country. And will there be any duty on them, they are only cuttings of the wine stock.—JEAN GRUENBECK.

Reply by Mr. John Craig, Horticulturist, Experimental Farm, Ottawa.

Now that we have direct communication by steamer with Hamburg, shipping facilities are much better, and there should be less difficulty in importing in safety vines or other fruits than formerly when they were reshipped from Liverpool. The vines should be tied in bundles containing from twenty-five to fifty and packed in strong paper-lined cases. A liberal amount of moss should be used, care being taken that this be damp only, not wet. When packed too moist the buds are apt to swell and sometimes burst while in transit, thus bringing them to their destination in an unfavorable condition. And one that is always attended with a heavy loss to the planter. Each case should be firmly packed, with the moss evenly distributed between the bundles, and a good coating next the box on all sides. The duty on grape vines costing less than ten cents is two cents each, on those costing ten cents and over, twenty per cent. ad valorem is charged.

Before importing these vines, I would suggest that Mr. Gruenbeck consult the catalogues of our Canadian nurserymen, not only as to cost but as to variety. The experiment is doubtless an interesting one, but it might prove somewhat expensive in the outcome, as the success of the German wine grape in Ontario is very doubtful. European grapes have almost invariably failed in this country, their failure being due to defective foliage, tenderness, and attacks of phylloxera. Again, if designed for grafting stocks they will be found much less desirable than our natives, which fact has been keenly appreciated of late by European nurserymen. A prominent writer says, "Already millions of American grape vines are growing in France and Germany, hundreds of thousands in Spain, Italy, Hungary, etc., how much

more then must we look to species which we find indigenous here and to their descendants for success in grape culture." Thousands are imported by France annually for grafting stock. If European varieties are tested here they certainly should be grafted on native stocks. American nurserymen quote vines at very low rates, but in making an estimate of the cost, the duty above referred to must be added.

Open Letters

STRAWBERRIES IN OCTOBER.

SIR.—An article appeared in the Nov. number of the HORTICULTURIST under the caption of a late strawberry. I think your correspondent was in error as to its being a late variety. I am inclined to think it was the Jessie. At that date I had plenty of them and have had them (only fewer) till the present date. The most of them produced from runners without taking root, they were all from the Jessie except one from a seedling of my own. I send you one developed berry with a bunch of blossoms with fruit partly formed, also a part of a raspberry cane in the same condition, to show what nature does in the cold north. I enclose a paragraph from one of our local papers showing the date I had them growing.

"A bunch of ripe strawberries together with some strawberry blossoms, were picked by Mr. F. W. Porter in his garden here on Monday and shown our reporter. Mr. P. says they are not the only berries he has picked lately, but that they have been quite plentiful. Picking ripe strawberries out of a garden in Mt. Forest on Oct. 6th is a rare occurrence."—

Mount Forest. F. W. PORTER.

SUBSCIRPTIONS ARE NOW DUE,

And should be sent in at once, naming at the same time the choice of plant for testing; otherwise we cannot guarantee that any plant will be sent.

We give below the list of plants which we propose to send out next April or May. Contracts for them have been made with reliable nurserymen, and we hope they will give satisfaction. It will be understood that these are all of a size, small enough to be sent by mail.

1—Russian Apricot.
2—Simon's Plum.
3—John Hopper Rose.
4—Shaffer Raspberry (four tip plants).
5—Wealthy Apple.
6—Bubach No. 5 Strawberry (four plants).
7—Richardi Alba-Maculata, or Spotted Calla.

Any one sending in new names may have an additional choice of plants for each new name in place of commission, if preferred. Note well the condition on which these plants are sent out, viz.: that a report concerning their success be given the Secretary when thoroughly tested.

NOTE.—Each subscriber will please notice that the Fruit Growers' Association does not guarantee anything concerning the merits of the above list of plants, but simply sends them out on the recommendation of their introducers to be tested by the members and reported upon for the benefit of the public.

GOOD OFFERS.—A Free Copy of the "Canadian Horticulturist" for one year, with Report, and choice of plant, to anyone sending in five new subscribers and five dollars, or a bound volume. Back numbers can be furnished at 10 cents each, and bound volumes of the previous year at 75 cents to $1.25 each, according to style of binding. New subscriptions may begin with any month.

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Sec. of the Ontario Fruit Growers' Ass'n,
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Jan. 2t.

GOOD NEWS.

All subscribers to this Journal for 1891, will receive in due time a BOUND COPY of the Annual Report of the Ontario Fruit Growers' Association, containing also the Report of the Entomological Society.

This book, bound in cloth, will alone be worth $1.00 to any fruit grower, and should lead to sending in long lists of new members. Will our friends please show their neighbors how much may be had for $1.00.

This Journal could not be published for $1.00, were it not for Government aid, for the colored plates alone are a heavy expense.

Address THE CANADIAN HORTICULTURIST, Grimsby.

AGENTS WANTED

in every part of Ontario to send in club lists of members of the Ont. F. G. A., including a BOUND COPY of the Reports of both the Fruit Growers and the Entomological Society, the CANADIAN HORTICULTURIST for one year, and a choice of a tree or a plant for testing, all for $1.00!

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4. Mills Grape.	**5. Prunes Simoni.**	**6.**

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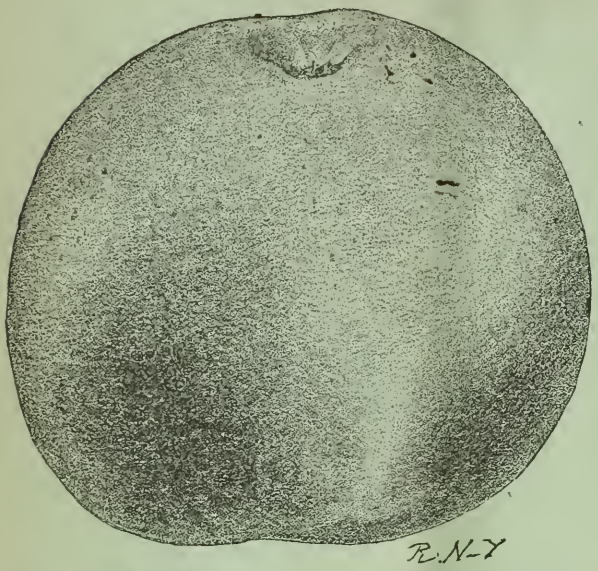

Is the headquarters of the new dessert apple PRINCESS LOUISE, which, in addition to all its former prizes, medals and recommends, took the first prize as the best Canadian seedling dessert apple at the late Dominion Fruit Growers' Association in Ottawa.

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FEBRUARY, 1891.

The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

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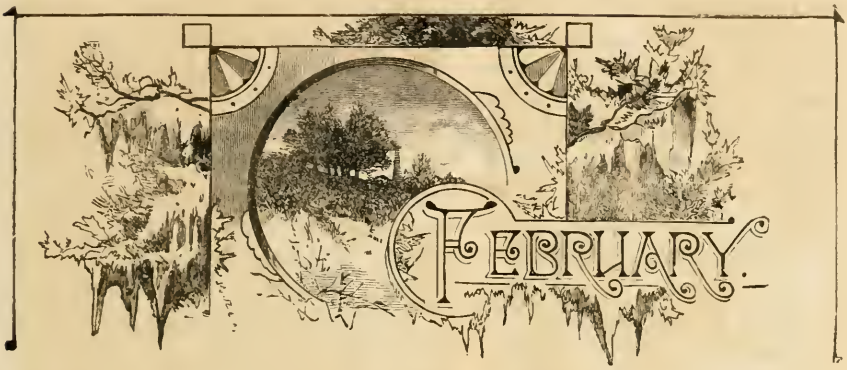
THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 2.



THE YUCCA.

OUR readers will, we are sure, appreciate our efforts in endeavouring to place before them hardy varieties of trees and shrubs suitable to our Canadian climate, and in warning them against planting tender kinds, which, after careful nursing, must sooner or later succumb to our cold winters. The Yucca is a tropical plant, a native of the Southern United States and Mexico. It belongs to the botanical order Liliaceæ, and is commonly known under various names, as "Adam's Needle," "Bear's Grass," "Spanish Bayonet," etc. The plant presents a very striking appearance; its leaves are like bayonets and are twelve to fifteen inches in length; its flowers are creamy-white, and grow in great clusters. One traveller in California states that he there discovered a specimen which carried one thousand four hundred to one thousand five hundred blossoms to each flowering stem.

There are over a dozen varieties known to botanists, some of which have a very sweet perfume and are very beautiful. Yucca baccata, for instance, a native of Mexico and Colorado, has flowers from two to three feet in length, and inflorescence from five to six feet. The fruit of this variety is fleshy, and is eaten by the Indians as we do bananas, which it somewhat resembles in flavor.

Yucca baccata has been also grown in the south of France, where it succeeds admirably and produces even larger flowers than in its own natural habit. But this and most other varieties are too tender for our climate.

There is one variety, however, which may be safely planted in Canada, namely, Yucca filamentosa, which is shown in our colored plate. This has been grown by Dr. Beadle, at St. Catharines, and by us here at Grimsby, without winter protection. In the words of Dr. Beadle : "It is a perennial and ever green, contrasting very strangely with our winter snows; in truth, so strangely, that it seems like a migratory creature that has failed to wing its way to sunny lands when its mate has departed." Its name, filamentosa, is the Latin for thready, and has reference to the thread-like appendages of the leaves ; these latter are pointed with sharp spines, giving rise to the common name "Adam's Needle," from the poetical notion that it was used by Adam when he made his fig-leaf apron. The flowers of this variety are from one-half to two inches in length, and the inflorescence reach a height of from four to eight feet, so that our readers must not make the mistake of planting in a small bed, or in a situation too near the garden walk. Indeed, it shows to the best advantage planted in the back-ground in beds of a dozen or so plants, set two feet apart each way.

The Yucca delights most in a rich, light soil, and, when once established, will last many years, constantly increasing in strength and vigor. Anyone who has once furnished his garden with a few plants will soon be able to enlarge the bed to any extent from natural increase, for it may be propagated with great ease by simply subdividing the roots.

THE WINTER MEETING.—I.

THE Winter Meeting of the Association at Hamilton was an excellent one. The city council placed at our disposal their new and elegant council chamber, which was in every respect adapted to our purpose. The dais was kindly decorated by Messrs. Webster Bros. with some fine plants from their greenhouse, and the fruit exhibit in the adjoining room was full of interest.

On Tuesday evening Mayor McLellan welcomed us to the city and addressed the meeting in a most courteous manner.

An interesting feature of the meeting of Wednesday was the visit of Mr. John Dryden, Minister of Agriculture, who gave us a most encouraging address, showing the deep interest which he took in our work. Among other things, he kindly promised us that he would bind a sufficient number of copies of our annual report to furnish every member of our Association with a copy. This statement was received with cheers from the members present, and

the distribution of this valuable book will, we feel sure, serve to largely increase the list of new members for 1891.

One of the very practical subjects which was discussed at the meeting was the manner in which express companies in Ontario handle our tender fruits in transporting them to the various markets. This matter was first introduced at the Summer Meeting, by Mr. T. H. Race, of Mitchell. Many complaints were made by various members present, showing what great damage had been done to their packages of choice fruit by careless handling in loading and unloading, and in setting away on board the cars. It was thought that better accommodation should be provided, and that more time should be given for the careful loading and unloading of such perishable goods, especially considering the very high price which these companies charge. The whole matter was referred to a committee, who brought in the following report, which was adopted by the Association :—

That the Ontario Fruit Growers' Association, on behalf of the fruit growers and shippers of this Province, hereby condemn the action of our express companies in their system of handling, stowing and transferring their fruits from the points of loading to the markets. That through their unnecessary rough handling and delays in transferring the fruit, growers are constantly sustaining heavy damage, for which, at present, there seems to be no reasonable remedy. We, therefore, hereby memorialize the Dominion Government to enact such legislation in the premises as will relieve the fruit growers and shippers by providing an enactment that will enable them to recover substantial damages from such express companies, and that the companies be compelled to carry such fruits to points of destination upon express train scheduled time.

Another subject of practical importance to our fruit growers was the inspection of fruit. It was agreed by all present that it would be a great boon to fruit growers in Ontario if there was some standard of excellence by which the various fruits could be sold upon mentioning their grade. If some plan could be devised by which buyers would be able to judge with confidence of the quality of the fruit they were purchasing, the prices which they would offer would be much in advance of those at present received by us, and we would find much more ready markets for our fruits. This also was referred to a committee, whose report also was adopted. Their report was as follows :—

That we deem it in the best interests of the fruit growers, shippers and customers, as well as the good name of our country, that a standard of excellence be established for such fruits as are shipped in barrels and other close packages into the markets of our cities and towns and for exportation to foreign countries, and that this Association memorialize the Dominion authorities to appoint an inspector for that purpose.

There was an attempt made at the preparation of a district fruit list, showing the fruit best adapted to each agricultural district, or division of such, in our province. This, however, was very incomplete, and will be subject to very considerable amendment before it is adopted. For instance, the Early Harvest was given, as one reported by a large number of local growers, as among the most profitable of summer apples (for their district). Now, it is evident to all who have had experience with this apple that it is utterly worthless on account of the scab. This renders it wholly unfit for market, and, of late, it is also

so horribly disfigured that it is even unfit for home use. Mr. A. McD. Allan gave in amendment to the list presented for the County of Huron, the following as the varieties he would recommend to planters of orchards for commercial purposes, viz. :—For summer, the Yellow Transparent and Duchess ; for autumn, the Gravenstein, the Peewaukee and the Blenheim Orange ; for winter, the Baldwin, the Ontario and the Golden Russet.

Mr. S. D. Willard, of Geneva, N.Y., gave a very interesting address upon Fruit Growing in Western New York during the past season. Mr. Willard is Vice-President of the Western New York Horticultural Society ; he is a most enthusiastic fruit grower, and infuses life into any meeting at which he is present. He highly recommended the Yellow Transparent as a summer apple. The Sutton's Beauty, he said, keeps better than the Baldwin, and is an apple which will be wanted for every orchard as soon as it is generally known. Among peaches, Hill's Chili, though not a very good variety for eating out of hand, is an excellent one for canning purposes ; Early Rivers is comparatively a hardy variety, enduring cold that will destroy the fruit buds of many other varieties. Its child, the Horton Rivers, is very similar, but a free stone. The Yellow St. John, he considered the earliest of yellow peaches, and a variety he had never yet known to fail. The Garfield, or Brigdon, quite a new variety, promises to be a standard orchard variety, for it possesses great merits. Listening to Mr. Willard, one could not help becoming an enthusiast in fruit culture. He spoke in terms which seem almost extravagant regarding the profits of this industry. For instance, speaking of pears, he stated that his best paying crops had been taken from his Bartlett and Kieffer orchards. Of the latter variety he has one orchard of two hundred and fourteen trees, planted upon a little more than an acre of ground, and this has yielded him in three years the sum of $3,000 ; during the year 1890, $1,250 of this amount. Notwithstanding its poor quality there is not a variety that is growing more rapidly in favor than the Kieffer. In speaking of plums, he said the most profitable varieties were those ripening for the very early or very late market, but that it would be wise to plant for market a list of varieties covering the whole season, and possessing the characteristics of hardiness, productiveness and firmness, for distant shipments. The Windsor cherry he considered the best dark colored cherry that he had ever marketed. He had sold it in the City of Philadelphia as high as 20 cents per pound.

In reply to a question by some one present regarding the pruning of plum trees, one gentleman stated that he allowed his trees to grow as they chose, without any pruning. This brought Mr. Willard to his feet again, and he stated that formerly he had done the same, but, on visiting the Hudson River plum growers on one occasion in winter-time, he found them busily engaged in pruning their plum trees. Upon enquiring the reason of their practice, they said that if they neglected to do this their trees would be broken with the load of fruit; but by shortening them in they were made to stiffen up and support heavier loads. Since that time he has made it a rule to cut off from one-quarter to one-

half of the new wood on all rampant growers, and finds that this makes them able to support a much heavier load of fruit, and withstand the violent storms of wind. This work should be done in the winter-time, or some time when the trees are dormant ; never in the month of May.

SPRAYING *vs.* JARRING FOR CURCULIO.

WHO is to prescribe when doctors disagree? We have before us two bulletins, published simultaneously, one from the Michigan Agricultural Experiment Station, and the other from the Ohio Experiment Station, giving growers contrary advice regarding the benefits of spraying for the curculio. Mr. C. M. Weed, entomologist of the latter station, considers that he gave the spraying a thorough test in a commercial orchard of nine hundred trees on the south shore of Lake Erie, and, as a result, he says that, "so far as one experiment can be relied upon, this method is as efficient as jarring, while it is vastly cheaper and easier of application." Mr. Weed used four ounces of Paris green to fifty gallons of water, and gave the orchard four applications. There were nine hundred plum trees in it, and half of these were treated with Paris green, and the other half carefully jarred in the usual manner. Both parts of the orchard bore a heavy crop, but not over three per cent. of the fruit on the sprayed trees was stung, while four per cent. of that on the jarred trees was injured.

Prof. Cook, of Michigan, says, on the other hand, that he has been experimenting with arsenites for the curculio during the past ten years, indeed, ever since he discovered the usefulness of Paris green for destroying the codling moth, and only once has he had results that were entirely satisfactory to him. During the same period he has been comparing the benefits of the old method of jarring, with spraying, and his opinion now is, that the former is the "surest, cheapest and best method of saving our plums." He acknowledges that the parent beetle eats the foliage and fruit of the plum tree during the time when it is engaged in oviposition, viz. : from the 20th of May until the 1st of July, and that the consumption of these leaves will kill it ; but in actual practice, he says, one cannot rely upon the beetles eating enough of the poison to put an effectual stop to their work of destruction.

The jarring must be done either early in the morning or late in the evening, for the lazy little turk hides away under chips or other rubbish on the ground during the day-time, and comes forth at night, like other evil doers, to do his mischievous deeds. For this latitude, the work should begin about the 20th of June and continue until about the 1st of July, at which time the old beetles will have completed their work ; and although the young beetles will be coming forth in succession, the fruit will be beyond danger on account of its size, unless, perhaps, the stings they make may predispose some of the plums to rot. The jarring should be repeated nearly every day, unless very few specimens are found, in which case it might be omitted for a day or two.

Prof. Cook gives some good hints on the method of jarring, which may be useful to those of our readers who wish to experiment for themselves as to the comparative merits of these two modes of combatting the curculio, therefore we give the following extract from this bulletin :—

The method of jarring is, in short, to place a sheet under the tree and give the tree, or in case it is quite large, each branch, a quick, sharp blow. The insects fall to the sheet and are easily gathered and crushed.

The sheet may be mounted on one or two wheels, like a wheelbarrow, in case of large orchards. The frame holding the sheet may be so made as to give the form of an inverted umbrella, and a narrow opening opposite the handles will permit the centre of the sheet to reach the trunk of the tree. A cheaper, simpler and more common arrangement is to have two sheets on light rectangular frames, which, when brought side by side, will form a square large enough to catch anything that may fall from a tree under which the sheet is placed. If each frame has a square notch in the centre of one side they may be brought close together about the trunk of the tree, so that the sheets will surely catch whatever may fall. With two men to carry these frames and a third to do the jarring, the work proceeds with great speed. Less than a minute is required per tree. In case one has only a few trees, and no help, the sheet may be square, and slitted from the middle of one side to the centre. Opposite this side it is tacked to a light, slender piece of wood, and opposite this it is tacked to two similar strips, each one half the length of the side. This makes it easy to carry the sheet, to place it entirely around the tree, and to roll it up, in case we wish to set it away in a barn or shed. Of course the sheet should always be large enough to catch all that falls from the trees.

The mallet with which we strike the tree or limb should be well padded and carefully used, so as not to wound the tree, or may be iron or wood unpadded, in which case a bolt or spike is driven into the tree to receive the blow. Sometimes a limb may be sawed off to receive the blow. I have used the padded mallet successfully for years with no injury to the trees. I find that I can fell all the beetles to the sheet with such a mallet. Unless we are very careful, however, in the use of the padded mallet we may do serious damage to the trees.

When two carry the sheet, and a third party uses the mallet, we may jar several trees before we stop to catch and crush the insects.

It is usually cool at the early or late hour, and the insects are rather sluggish and will generally remain motionless for some minutes. If one uses a sheet like the last described above, it is, perhaps, best to kill the insects each time after jarring. In case of the wheel-sheet there is sometimes a box placed at the centre, and the inclined sheet makes it possible to shake the beetles from the sheet into this box. I am not sure but this is better in theory than in actual practice. The curculio may be brushed into a vessel containing kerosene, or crushed between the thumb and finger.

The expense of jarring will, of course, depend upon the excellence of the apparatus, and upon the skill and quickness of the operators. Our largest and most successful plum growers in Michigan estimate the expense at about ten cents per tree. I inquired of several of our best pomologists and the estimates run from five to fifteen cents per tree per season. Surely this is not an extravagant amount.

In conclusion, let me say that I believe it would pay all our fruit growers to set plum trees thickly among the other fruit trees of the orchard, and then to fight this insect as described above. This will not only secure a fine and very profitable crop of this luscious fruit, but will at the same time tend to protect the other fruits from this scourge of the careless orchardist, without extra expense.

It is rather a comforting idea, this of Prof. Cook's, that the curculio is to be classed among the friends of the fruit grower, being an assistant to him in the much neglected work of thinning his fruit. Certainly one who works for nothing and takes his pay in waste fruit ought to be entitled to some consideration ; but we fear it will be some time before our plum growers will look upon this insect otherwise than an as enemy.

That Paris green is a failure in preventing his injurious operations will, as yet, be hardly taken as proved by some of our Canadian plum growers, until

more fully experimented with. We have ourselves had several undoubted successes in its application, but, of course, that is no proof that it will succeed in every case. Mr. Geo. Cline, a neighboring grower who has an orchard of several thousand plum trees, is confident that he has on several occasions saved his crop by the use of Paris green, applied in the strength of three ounces to fifty gallons of water.

We have also sprayed our Duchess apples and Bartlett pears for the purpose of warding off the curculio stings, and whereas, formerly, there were a large proportion of pears that were knotty and classed as No. 2 from this cause, as in

No. 1.

No. 2.

Fig. 1, now the great proportion are free from these blemishes, as in Fig. 2, except where affected by fuscidadium, a fungus which is more to be dreaded than the ravages of any insect.

Last season we tried spraying with hellebore and water, using it both on plum and cherry trees in about the proportion of one ounce to three gallons of water, and we were surprised at the good results obtained. No count was made from which to make definite statements, but from one application we are inclined to think that it is a more certain remedy than Paris green. In the interest of plum culture we sincerely hope that our scientists will prescribe some more easily applied cure for this evil than the old jarring process, which needs such frequent attention in a season when the fruit grower has his hands too full to give it the daily attention it requires.

A COLD GRAPERY.

Would you kindly inform me how to prepare a border for vines in a cold grapery? Also would it not be better to plant them inside as they would be better protected in the winter and the roots could run into a border prepared outside as well? What kinds are most suitable? The building is to be 45 feet long, and would hold eight vines, say 2 Black Hamburgs, 1 Golden Hamburg, 1 White Frontignan, for foreign kinds, and 1 Salem, 1 Mills, 1 Catawba for hardier kinds. Could you suggest a better selection? Also would you advise to train to one or two stems to top of house? And what distance apart, and how many?

A. J. COLLINS, *Listowel.*

REPLY BY D. W. BEADLE, ST. CATHARINES, ONT.

Preparing a border for vines in a cold grapery.

If the soil be a retentive clay, and, as is usually the case, cold and wet, it is necessary to provide perfect drainage. To do this thoroughly the whole of the soil to the extent of the intended border and to a depth of three feet, should then be thrown out, the bottom being made to slope evenly to the front with a fall of one inch to the foot. Along the front of the border, and just below the edge of the bottom, a tile drain should be laid, with a fall of one inch to the foot, so that all the water that runs to the edge of the border shall be carried off promptly. The bottom should then be covered with broken stone, or with brick rubbish, or very coarse gravel, and upon this a layer of gravel a little finer, then other layers, gradually increasing in fineness of material until the last layer approaches the texture of ordinary soil. This drainage material should be about nine inches deep, and covered over with inverted sod. This border should be five or six feet wide inside and as much outside. This will afford ample room for the roots of the vine the first year. The second year three feet more can be added both to the inside and outside portions. As the vines increase in size the border should be widened until the whole width is made up. It is better to increase the width of the border as the vines require than to make it the entire width at first. In sloping the bottom of the portion outside of the vinery, it should be borne in mind to have the slope descend towards the tile. Also it is essential that there be a good outlet at the lower end of the tile drain, permitting the water to be discharged without check.

The best soil with which to fill up the border is that taken from an old pasture, where the grass is fine and thick, paring off the sod to a depth of three inches. This should be stacked under cover for say six months, or until the grass is dead and the whole mass dry; then broken up and mixed with lime rubbish or old plaster; adding to every ten loads of the soil two of lime rubbish, one of charcoal, and two of fresh fermenting horse manure, together with four hundredweight of coarsely broken bones. This should be thoroughly turned over several times that the several constituents may be well intermingled. If the soil contains more than thirty per cent. of clay it will improve it to reduce it with sand, if it contains less, then increase the quantity of horse manure and broken bones. Horn shavings may be substituted in whole or in part for broken bone, if more easily obtained. While this compost is being prepared it should be kept dry. When prepared fill up the border with it, fill it say six inches above the level, so that when it has settled it shall not be lower than the surrounding soil.

Planting the Vines.

Plant the vines inside of the vinery; and settle the earth about the roots by watering moderately through a fine rose. Repeat the watering until the soil is well moistened throughout. Afterwards in watering the inside border give it always a thorough drenching, not a mere surface watering. Use rain water, tepid; at the first watering in the spring

when the buds are breaking, be sure to soak the border thoroughly ; water afterwards as needed. If the rafters are placed three feet apart from centre to centre, which they should be, then a vine can be planted under each of the rafters, and trained under the rafters, thus giving to the laterals the full benefit of the glass, that is, of the light. If the house is 46 feet long, inside measurement, it will hold eleven vines. Train up only one stem under each rafter.

Vines for Cold Vinery.

Black Hamburg, Muscat Hamburgh, Royal Muscadine, Chasselas Musque, Grizzly Frontignan, Golden Champion.

I note that Mr. Collins proposes to plant some of our hardy or native grapes in the vinery, such as the Catawba, Salem and Mills. I am under the impression that those who have tried growing native grapes under glass have not been satisfied with the results, but on this point cannot speak from either experience or observation. It seems to me that he could buy them at Pelee Island and pay the freight to Listowel at a much less cost than growing them under glass.

Permit me to add that it is always desirable to have some means of heating even a cold grapery, for it often happens that the warm days of spring are followed by a period of chilly weather accompanied by frosty nights, and unless the temperature of the house can be kept up, the vines become severely chilled, and sometimes in a single night they will receive a shock from which they will not recover for some time.

A NOVEL MODE OF SELLING APPLES.

MR. GEO. W. SHAW, of Garden Grove, Iowa, gave his mode of selling apples before the State Horticultural Society. He hires a car, and divides it into bins of about five feet wide, leaving a passage-way along one side. He places about six inches of clean prairie hay in bottom, and then fills in his apples, keeping the kind separate by means of these bins. He finds that he can in this way put about one thousand bushels in a car, which is more than can be put in a car in barrels, and saves their expense besides, for at the end of the journey he sells the lumber for about first cost.

He says there is no other way in which apples can be shipped and bruised as little as in this. The freight only amounts to about ten cents a bushel for a distance of five or six hundred miles. He arranges the apples tastefully, by contrasting colors in different bins ; thus, Grimes' Golden and Yellow Belleflower contrast well with Jonathan and Fameuse.

When he arrives at a town, for of course he markets his own fruit and thus saves all commission, he first buys a few apples to get the market price, hires an intelligent, honest man to assist in measuring, and then advertises freely.

In canvassing for orders he addresses himself to customers somewhat as follows :—

We have at the depot, in our own car, 1,000 bushels of apples of our own growing ; Fameuse for present use ; Jonathan, Grimes' Golden, Northern Spy, and Wagner for early winter. Ben Davis, Willow Twig and Rawle's Genet to do until strawberry time next spring. Remember that the apples you buy at the stores pay nearly or quite a half-dozen profits ; the banker has his for the money which he loans the shipper. the wholesale and retail men have theirs ; now we can afford to divide the profits with you.

In about a week he has retailed out his carload of apples, got the top price with the least expense, banked his money and is prepared to load up another car for some other point.

Is there not a hint here for Ontario fruit growers? Do we try earnestly enough to get nearer to the consumer? Are not the middle men getting too large a share of our profits?

TREE ROOTS.

WHILE much has been written and said respecting the care of the stem, branches, fruit and blossom of trees, it might not be inappropriate to say a few words respecting their descending parts. Trees seem to lose, to some degree, their fruitful qualities by grafting scions, taken from grown young trees, instead of from those that are known to bear; but it seems evident that the practice of cutting the roots into fragments must retard, if not injure, the growth of the trees. Again, nurserymen are not as careful of the roots in digging as the nature of the roots require. Hence, every orchardist ought to say,

"Spare, man, spare the tree,
You dig for me."

Some years ago we sent an order for one thousand peach trees to Zenia, Ohio, but the roots were cut so close to the stem that we might have set them out, like our grafts, with a dibble instead of spade. So we consigned them to the flames, the place for wood, hay, stubble of works that have been condemned. Then, when a tree has not been injured in stalk, stem or root, dig a place for it the diameter of which is twice the longest root. Let the roots descend at an angle of forty-five degrees, and that will give the depth at the circumference, and, if the roots be seven or eight, be sure and lay them straight and, at the highest part of the cone, sink the tap root until the stem is even with the surface, and pack the earth about it and the tree will not need a stake to hold it in its place. Never bury the stalk deep, unless to ward off the mice, and then be sure to remove the incumbrance in the spring of the year. That trees need air is evident from the fact that if you herd cattle around the roots the trees begin to fail and show signs of decay. Trees on river banks get air, food and moisture, and it is said of them, as of a good man, "their leaf shall not fade."

Grimsby, Ont. C. E. WOOLVERTON.

GRAPES IN MUSKOKA.

Mr. H. Reazin writes, in reply to question 84, as follows:—Clinton, perfectly hardy, and bears well at Bracebridge; Isabella, perfectly hardy, and bears well but fruit ripens late; Moore's Diamond, perfectly hardy, bears well; Moore's Early, perfectly hardy, bears well; Brighton, perfectly hardy, bears well; Moyer's Early, perfectly hardy, bears well.

THE VITALITY OF SEEDS.

FEW things are more vexatious to the tiller of the soil than the failure to grow of carefully sown seeds.

Experimenting gardeners seldom meet with disappointment in this way, because when they have any suspicion as to the quality of the seed they test it before sowing for crop.

Many dealers in seeds, as well as inexperienced cultivators, seem to have but vague ideas as to the length of time various seeds will retain their vitality. I once had the audacity to ask a country store-keeper, a familiar friend of my own, how he disposed of his surplus garden seeds ; his reply was that those in bulk were generally mixed with the new stock, and those in packages, unsold, were returned to the wholesale dealer, and that he supposed this was the general practice throughout the country.

Professional seedsmen, who have served a regular apprenticeship at the business, are educated in the belief that honesty is the best policy. No publicly-known seedsman would sacrifice his reputation for the paltry sum he might be able to gain by selling a parcel of seed which he knew to be worthless. Our professional seedsmen as a class are entitled to our praise for their integrity and uprightness. They cannot, in any way, be held accountable for the transactions of some retail dealers, who have little knowledge of the evil consequences of selling old or injured seeds, nor for the rascally deeds of the itinerent scamps who live and make riches by swindling the agricultural community.

If buyers would order direct from responsible seedsmen there would seldom, if ever, be any cause for complaint about bad seeds.

Some seeds, such as purslane, plantane, burdock, red-root and pig-weed have much more vitality than some gardeners wish they had. It is said by some that wild mustard seed never dies. I know it keeps well under almost any circumstances.

Oily seeds, such as those of turnips, cabbages, rape and radishes, retain their vitality for many years if properly cared for. Yet cauliflower seed is very uncertain after it is more than a year old, and, even if old seed does germinate, the plants are apt to be feeble.

Two-year-old carrot, parsnips, celery, onion and salsify seeds are worthless, except to fraudulent vendors, who offer cheap seeds for sale.

All kinds of beet seeds retain their vitality for more than one year, but their thick covering becomes so hard and tough with age they will not germinate when old, except under very favorable circumstances.

Some kinds of pears and beans, if kept under favorable conditions, will germinate when very old.

Melon, cucumber and squash seeds may be preserved in good condition for many years, but often their vitality is injured by exposure to hard frost.

Some flower seeds are remarkably tenacious, for instance that of the Iceland

poppy, although almost microscopically small, will germinate when over twenty-five years old.

The coxcomb and all the amaranthus tribe will germinate when more than half a century old, and no one seems to know how long the vitality of the sunflower will last. Many of the grass seeds are good when two years old. Timothy seed will grow when more than ten years old.

Some tree seeds are remarkable for the short time they will retain their vitality. For instance, those of the soft or red maple, as soon as they drop and come in contact with the earth in the shade, they begin to grow; yet, if exposed to the sun for a few days they will never germinate. Just so with elms; their seeds must be sown in the shade soon after they are ripe, otherwise there would be no plants. Other tree seeds are remarkable for the length of time it takes after they are sown to germinate.

Hawthorn seed will not grow until the second season after it is covered with earth. Red cedar seed never sprouts until it has been in contact with the earth for two winters.

I have often seen apple and pear seeds grow after they had lain in the ground a year and a-half. Mostly all the coniferæ seeds also, if they do not grow the first season after being sown, generally come up the second. The vitality of many kinds of seeds is quickly injured by exposure to the sun. Generally speaking they should be dried in the shade.

This subject was suggested to me by the perusal of an article concerning a patented germinator sent out by F. P. Dimfel, of New York; through the use of which there are to be "no more short crops," and which gives absolute assurance of "perfect and complete germination of all kinds of seeds, and an increase in yield of more than twenty-five per cent." The patent is a compound solution in which the seeds are to be immersed and soaked for twelve hours, after which they are to be taken out and allowed to dry before being sown. I know nothing practically about the merits of this wonderful invention, but, if it restores to vitality all kinds of seeds, it will certainly soon become better known.

I have often gained time by soaking seeds in warm water for a time, yet I could not recommend the practice except to very careful manipulators, because, if the soil becomes very dry soon after the soaked seeds are sown, their vitality is injured, probably destroyed. Shading prevents this effect to some extent, but the shading of large fields is impracticable.

Some seeds endure great heat and a good deal of soaking without apparent injury. We all know that white clover seed will pass through an animal and grow, years after the ordeal. I used to suppose that allowing the manure pile to heat would be the means of destroying the vitality of all kinds of weed seeds, but, after considerable experience, I found that many seeds, such as those of shepherds' purse, purslanes, plantain and pig-weed, seem to be improved by the scalding, which seems to agree well with many other kinds of seed, but to enumerate would take up too much of your valuable space.

Reliable seedsmen are sometimes blamed for selling worthless seeds; whereas the failure to grow is caused altogether by the indifferent treatment they are subjected to after they are purchased in good condition.

I have often seen failures caused by sowing too deeply in clayey soil. Soon after sowing perhaps a heavy rain would come, and immediately thereafter drying winds would form a hard crust on the surface through which no seeds, with the exception of black oak acorns and hickory nuts, could push their sprouts.

Seeds sown late in the spring are not nearly so certain of germination as when sown early.

The best crop of mangels I have ever seen was from seed sown in the fall, yet the practice of sowing mangel seeds in the fall could hardly be recommended, because, should the seeds germinate before the winter sets in, the young plants would almost certainly be killed.

In order to prevent disappointment and dissatisfaction it is generally advisable to test the quality of seeds before sowing for a crop, and the best way to do it is to fill flower-pots with good, rich, loamy soil, place them in a room of ordinary warmth and sow one hundred seeds of a kind in each pot. If over ninety-five per cent. germinate, you may rest assured the seed merchant had not been trying to cheat you.

Cataraqui, Ont. D. NICHOL.

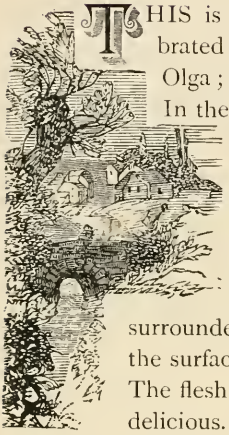
PROFITABLE METHODS.—Get the early fruit into neat crates and baskets and turn it into money. In some seasons very poor, gnarly fruit is saleable because fruit is so scarce. The sooner it is in market the more it brings. Handsome and honest packing, pay and be sure your name is on each package. If a surplus of cultivated or wild fruit forbids their sale it is often profitable to gather, dry, can or otherwise preserve them. Quite a business has been built up occasionally in this way from a small beginning. Cheap and effective fruit evaporators can now be bought which can be soon made to pay for themselves. Perhaps one of the boys or girls could make a few dollars in this way and lay the foundation for a successful business career at the same time.—*Farm and Home.*

SETTING OUT ORCHARDS.—Many orchards are set out in autumn; still more in spring, the ground should well be prepared in autumn. If the soil holds water in wet seasons, it must be well underdrained. Subsoiling in most localities is of much value. This work, it is true, may be imperfectly performed after the trees are set and growing; but the work is more easily done, and in a better manner beforehand. Some persons mistakenly recommend setting trees where nothing else can be raised, as on hillsides or among rocks and stones; but as a good and well managed orchard is commonly more profitable for the acre it occupies, than almost any other crop, the best ground should be chosen for it, so that good cultivation may be given. It was formely recommended to dig wide holes. This practise answered well enough for a limited number of trees, where the sub-soil was hard and had not been loosened.

New or Little Known Fruits.

LETTERS FROM RUSSIA.—VI.

GRAND DUCHESS OLGA.*



THIS is one of the best Russian winter Reinettes, and our celebrated pomologist Lieb has given it the name of Grand Duchess Olga; the same apple is also known in Germany as "Reine Olga." In the gardens and markets it is usually called Little Crimean Apple, Red Crimean Apple, etc. The fruit is large in size, and has a pleasant aroma; the skin is thick and quite smooth. The color at the calyx is green; the rest of the fruit is beautifully shaded with deep carmine dots and stripes on golden yellow ground. Whitish dots are observable on the red ground. The closed calyx is usually surrounded with five characteristic humps, which do not extend over the surface of the fruit and therefore do not change its round form. The flesh is yellow, fine grained, juicy, of pleasant vinous flavor, and delicious. It ripens in March and keeps till July and even later. It bears shipment well, and is very little affected with worms; indeed, it possesses every quality which a commercial apple should possess, for it is suitable both

THE OLGA.

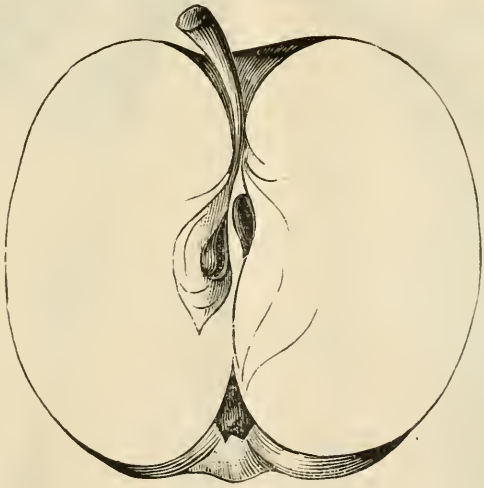
*The Grand Duchess of Russia is now the Queen of Wurtemburg.

for dessert and cooking purposes. The tree is hardy, being able to withstand not only great cold, but also extreme heat and drouth, grows rapidly while young, and is very productive. It is also an early bearer. I can highly recommend this kind to you.

Rovno Wolinia, Russia. JAROSLAV NIEMETZ.

N.B.—In my next letter I shall describe for you the grand Russian exhibition of fruits in St. Petersburg. In my letter, in June number of the CANADIAN HORTICULTURIST, please note the following errata in names of Russian scions sent you.

39 Solotarev read Zollotarev.
14 Ogust from Kankar, read Ogust, from Kau Kasus.
40 Gana, read Panna.
50 Plinka, read Tlinka. J. N.



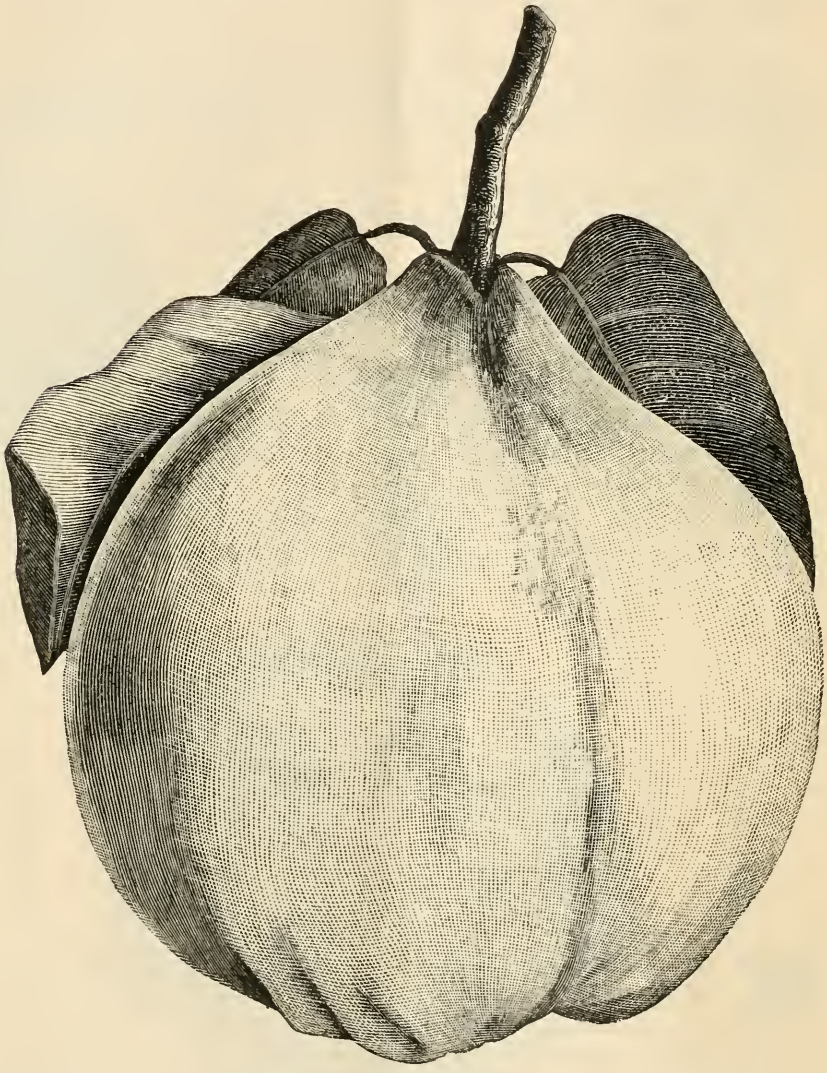
SECTION OF OLGA.

THE FULLER QUINCE.

WE are obliged to Mr. J. F. Lovett, of Little Silver, N. J., for the accompanying engraving of a new quince, which, according to reports, is worthy of notice. It is named after Mr. A. S. Fuller, who, noticing a seedling tree on a neighboring farm to produce fruit of an unusual size, took some cuttings and thus saved it from oblivion. Many of these quinces are said to weigh a pound each, and some, even more. It is described as pyriform, with a small neck, sometimes ridged, and with a deep wide basin. It is of a beautiful and rich high color, which it assumes very early in the season, and its flesh is exceed-

ingly tender and fine flavored. It has a delicious perfume, and is said, when cooked, to be greatly superior in flavor and tenderness to all other varieties.

The Fuller Quince may be described as follows: Fruit large to very large; distinctly pyriform, often with a very abrupt and small neck; the surface some-

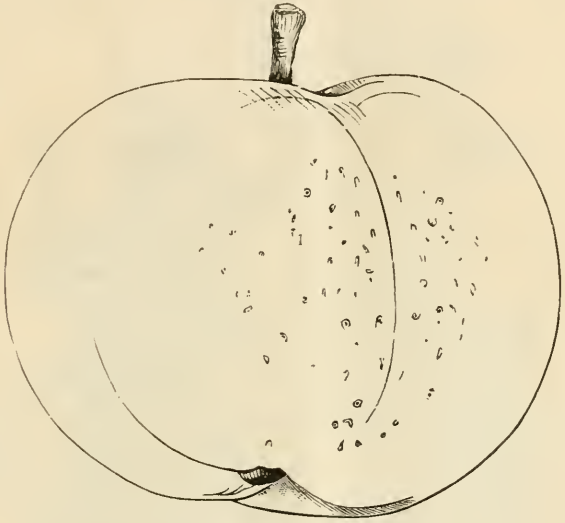


what ridged; the skin assuming a rich yellow color early in the season; calyx set in a deep, wide basin; flesh remarkably tender and well flavored. The quince is a most showy tree in flower and fruit, and the Fuller will be especially valuable to plant for ornament on account of its exceptionally large and brilliant fruit.

GEO. THURBER.

BABUSKINO, OR GRANDMOTHER APPLE.

By some oversight the engraving of this apple was omitted from page 11, where it should have accompanied Mr. Niemetz' description of it. We shall certainly appreciate the kindness of our Russian correspondent in thus introducing to our acquaintance from time to time the finest of the Russian fruits.



The Parker Earle Strawberry.—R. E. Williams writes in the *R., N. Y.* as follows :—Of the dozen or twenty kinds set this spring the most noticeable is the Parker Earle. I received from Mr. Munson a round dozen of these plants on April 22nd, and set them immediately. They were in bloom and had berries on as large as peas when received. Most of them were removed. The plants took hold at once and started to growing. The few berries left on, just to get an idea of the character of the variety, ripened, and every plant since has seemed determined not to be deprived of its right to bear fruit, has thrown up new fruit stocks, and yesterday (July 3rd) I picked a handful of ripe berries, and the plants are still blooming. Whether this is the mission of the variety to produce an annual crop of fruit, under any or all circumstances, or whether it is the acquired Southern habit seen in other varieties grown there—as shown in Florida—of ripening berries for two or three months in succession, I can't say. It is a feature I have never noticed in any other variety, and its performance next season, when thoroughly acclimated, will be interesting.

The Garden and Lawn.

THE CANNA.

IN another portion of this number we have described the Yucca as a very suitable plant with which to adorn our Canadian gardens. Another perennial of sub-tropical character, which may be grown in Ontario, is the Canna. In England, with winter protection, it may be left in the outdoor garden the year through, but it is too tender for that in our country. It needs to be lifted in the autumn and stored away in boxes with a little earth during the winter season, where, by giving it a little water occasionally to keep it from shrivelling, it will keep in good, plump condition until spring; then, after all danger from frost is over, it may be planted out in the garden. It is very easily propagated by root-division, for its root stocks resemble those of the Iris, and may easily be cut in parts, each of which, providing it is furnished with root and bud, will make a separate plant.

A sheltered spot in the garden is best adapted for the Canna, where it will not be subject to high winds. The soil should be rich and moist and never allowed to become dry. To avoid this it may be necessary to thoroughly drench it with water during the summer. With this treatment it will flower freely during the summer and autumn months, reminding one, in some of its characteristics, of the gladiolus, but far superior to it by reason of its beautiful foliage, which, in some varieties, is green, and others dark purple. Unfortunately those with the dark colored foliage are less beautiful in bloom than those with the green colored leaves, but possibly, through the efforts of our scientific gardeners, varieties may be produced in which both these excellences are combined.

The Canna is sometimes grown indoors, and is a very effective ornamental plant for the house. For that purpose the roots should be planted in six-inch pots, using rich earth, which should be plentifully supplied with manure-water in order to maintain a vigorous growth.

For the open ground a very desirable mode of planting Cannas has been suggested by Mr. Vick, in the accompanying illustration, where the tall growing

Ricinus, or Castor-oil Bean, forms the centre-piece of the circular bed, and is most appropriately surrounded by a ring of Cannas.

The oldest variety known is the *Canna Indica*, or *Indian Shot*, which was introduced to England from the West Indies in the year 1596. For a long time this was the only variety cultivated, and it was not until 1855 that the French gardeners began to pay attention to this plant, and have recently succeeded in

BED OF RECINUS AND CANNAS.

producing hybrids which are great improvements on that variety, both in leaf and flower. Among these the following are two of the most valuable, and we subjoin the description of them as given by Mr. Fewkes in *Popular Gardening*.

ADOLPH WEICK is by far the most valuable of the red-flowered Cannas, excelling all others in freedom of bloom and general usefulness. Though not a new variety, its great value has been but recently appreciated. It does not content itself with throwing up simple spikes of bloom, but each one branches into four or five side branches, which terminate in very full clusters of flowers of large size and great beauty. When well grown it will average about five feet in height, beginning to flower very early in the season. In pots in the greenhouse it will flower when about two feet high, and, if planted in a rich bed in June, will flower all through the summer until cut down by the frost.

PREMICES DE NICE.—Among yellows there is nothing better than this old variety, which was introduced about twenty years ago. The flowers are large, very freely produced, and of a clear, canary-yellow color. It reaches the heighth of about six feet, with pointed, light glaucous green leaves. The bright color and freedom with which the flowers are produced make this one of the most useful varieties grown.

NATIVE ORNAMENTAL SHRUBS.

WHEN laying out the grounds around the country home, it is by no means necessary to go to great expense in order to have them well planted out with appropriate trees and shrubs. No doubt the consideration of the high prices of the rare trees and shrubs usually sold for such purposes often deters the economical planter from filling out his grounds in such a manner as to set off the dwelling to the best advantage, and to screen objects that are not sightly.

A trip to the woods last autumn was well repaid in the large bundle of fine native trees and shrubs brought home for our own grounds; and the trip itself was a pleasure. To the unobservant the woods in winter are wholly uninteresting; they do not see a collection of individuals, each with its distinctive characteristics; but a monotonous whole, bare of beauty, only reminding one of the cold, dismal and wintry days of life. But the student of nature sees in each tree its own characteristics, in bark or bud or habit of growth; and even the various species of the same kind are easily distinguished by him.

Not to speak at this time of the trees suitable for planting in the house yard, there are a few shrubs of especial merit for this purpose, which impress the writer most favorably. One of these is the *Black Alder* (Ilex verticillata), which is found quite commonly in the Niagara district, in low and swampy grounds. In some neighborhoods whole acres are rendered gay with its bright red berries, which hang all winter unless robbed by the birds.

This and another species are the only Canadian representatives of the family, of which there are one hundred and forty-five species known. Although its natural habit is in swampy places, yet it will succeed in any good garden loam, and, for its winter beauty, it certainly deserves to be considered when filling up our lawns with clumps of shrubbery.

Walking along the brow of the so-called mountain, at the place called the "Fairview," near Grimsby, we found the *Witch Hazel* (Hamamelis Virginica), a tall shrub, which blooms very late in autumn and does not mature its seeds until the following summer. In form of growth this shrub is somewhat straggling, but, on account of its singularity, it deserves to be included in any large collection. Curiously it is not found anywhere in Ontario, except in some districts west of Toronto.

The Celastraceæ also furnishes us with some of our most showy native trees and shrubs; for instance, the *Strawberry Bush* (Euonymus Americana); the *Burning Bush* (Euonymus atropurpuræ), and the *Waxwork* or *Climbing Bitter Sweet* (Celastrus scandens).

The latter we found growing freely along the northern border of the Niagara escarpment, near Grimsby. One is surprised to find here and there in the month of November a thicket gay with berries of this beautiful shrub. They are not

really berries, but the effect is produced by the opening of the orange-colored pods displaying their scarlet seed covers. For covering bowers or trellis work this is an excellent hardy vine, and why it should be so little used in our Canadian lawns is to us a mystery, unless because of some inexplicable prejudice against using any plants or trees that are indigenous to our own soil.

A writer in the *American Garden* says of it,

Several years' trial have shown me that this aspiring vine can be trained. I have a gateway arch covered with bittersweet, and admired by all who see it. The arch is formed of ordinary water-pipe, with couplings and wire netting two feet in width. An upright of pipe on either side of the gate has a cross-bar of pine two feet long at its top, and from the ends of the cross-bar spring arches of small pipe upon which is laid a roof of wire

FIG. 1.—A SPRIG OF BLACK ALDER.

netting. The vigorous vines climbed the uprights of the arch like wild fire, and when I bent them down and fastened them to the netting they soon bristled everywhere with up-reaching branches, but under a free use of the pruning shears, cutting back two or three buds, they behave charmingly.

All summer the clean, thrifty leaves, waxy branches and bunches of plump green berries are a delight to the eye. But when autumn comes and the leaves turn yellow, and the berry capsules are orange, I almost think my arch is more beautiful than in summer. Still again, as winter approaches and the snow begins to fall and their yellow capsules turn back and show coral red berries hanging out from the snowy arch, I am in delight, and at Christmas time, when I am asked for bunches of berries for decoration, I am selfish enough to refuse to let them go, for they will hang as bits of brightness through the long northern winter, and I cannot spare them.

It is a marvel that this and so many other beautiful shrubs are despised simply because they are so common. There are the Elders, which are nearly

always destroyed as soon as possible because the farmer regards them as one of his enemies when growing in the field. But this shrub, when planted in its proper place in some clump of shrubbery of the lawn, is an ornament. This variety is most at home along the borders of streams, but there is another variety, which we find along the rocky sides of the "mountain," almost anywhere from the Niagara Falls to Collingwood, which is still more desirable. It is the red-berried variety (Sambucus Canadensis), and this grouped with the dark-berried one and other shrubs is by no means to be despised. To the same family that includes Elders, belong many other beautiful native shrubs, as, for example, the Snowberry, the Honeysuckles, the Cranberry tree, etc., all of which have special beauty, and would, if imported by some traveller from China or Japan, be highly esteemed. Why then do we not open our eyes to those beauties of nature which are about us, and beautify our house-yards with some of those charming Canadian shrubs which grow within our reach, and which may be had without cost?

FAILURE OF BLOOM.

ONE cause of failure to secure blooms is injudicious watering—deluging at one time and withholding at another, and paying no attention to the needs of the different varieties. The appetites and needs of plants are so varied as those of people, and their temperaments differ, too; there are the sanguine, the sensitive, the plegmatic—each requiring to be dealt with accordingly. While one plant will thrive, notwithstanding the utmost neglect, and subsist on almost nothing, another must have nourishing food and warm drink. It is a good plan to adapt the water to the temperature of the room, and always be quite sure that the drainage is good. Often a plant will droop and look sickly, when, if the matter is looked into, it will be found that water stands in the bottom of the jar. A bent wire is always useful in this case, for by penetrating the holes at the base of the pot, and stirring the earth, passages will be made for the escape of stagnant water and gas. Then water freely, being sure that the water runs through quickly; drain all off, loosen the soil at the top of the jar, and withhold moisture until the plant is again healthy.

The calla, as is well known, requires plenty of quite warm water; if in a double jar, boiling water may be used in the lower jar, and will wonderfully hasten growth and blossoms. Fuchsias are thirsty plants, especially when in flower, and moisture is necessary to the Chinese primrose. The majority of plants require a weekly bath; in fact, nothing so invigorates them as a shower bath of tepid water. Those which cannot be removed readily for the showering may have their leaves sponged.—*Vick's Magazine.*

The Garden.

ASPARAGUS.—I.

ITS CULTURE FOR HOME USE AND FOR MARKET.

ASPARAGUS is a luxury with which every household should be well supplied. It can be easily grown and delightfully prepared for the table without special culinary endowments, and, while satisfying the taste, accomplishes a valuable mission in the maintenance of good health. The principal reason why it is not a feature of every farm garden lies in the elaborate methods of growing it recommended by agricultural experts.

The mission of this monograph is to popularize the use of this excellent vegetable, especially among those who have the land upon which to grow it.

THE SEEDLING NURSERY.

Although he who plants a few roots of asparagus need not be instructed in the method of growing these plants, still it may be a matter of interest to know how it is done. The ground for a seedling plantation, if choice can be had, should be a rich, well-drained, sandy loam. A pound of seed, costing sixty cents, will be sufficient for several hundred feet of drill. The ground should be in the best of tilth and the lines of drill made about a foot apart and one inch deep. Impetus may be given to the germination of the seed by soaking in warm water twenty-four hours previous to planting. The seeds are placed about an inch beneath the surface and a few seeds of radish, cabbage, or some quickly germinating plant sown in the same drill to indicate the line for early cultivation in advance of the sprouting of the asparagus.

Once well above the surface, the plants should be thinned to three inches in the row and given good cultivation throughout the season with a scuffle-hoe and rake. Plants grown under favorable conditions are ready at the end of one year's growth to go into permanent garden rows. Well grown yearling roots should have several strong buds and a well developed root system. From a pound of good seed one should get four thousand merchantable plants.

THE GARDEN PLANTATION.

The best possible plan for a garden plantation of asparagus is to have it in a single row, parallel with the other varieties of vegetables and at one side. If the soil is fitted to grow a large crop of any other vegetable, it is good enough for asparagus. No special preparation is required, but it should be remembered that asparagus, although not a deep grower, is a gross feeder within the area upon which it draws for its sustenance. It reaches further sidewise than in depth. Its feeding time is not confined to the gathering season, but extends through the growing year. Hence the application of fertilizers is always in order.

For the reception of the plants, which should be strong yearlings, a trench or furrow should be made wide enough to admit the plants and the roots in their natural position, and of sufficient depth that the crowns of the plants, when in position, shall be six inches beneath the level of the surface of the garden, and three feet apart in the row. If two inches of earth are drawn over the plants and well firmed about the roots, the remainder may be filled in gradually during the season of cultivation.

This row of plants will utilize the ground five feet on either side and in a few years will have crowns a foot in diameter.

This plant is made for a half century, and if there is a choice of location with reference to the embellishment of the garden area, this matter should be given serious consideration at the outset. The row should be given clean culture. A dressing of salt will kill the weeds and asparagus will stand a large amount of it without apparent injury, but it is safer and better in every way to secure the result by good cultivation rather than saline application. I have for years used refuse salt from a hide packing establishment as a dressing for an asparagus bed, and have noticed that the larger the amount of animal refuse in the salt the more satisfactory the application, and am convinced, if the salt were reduced to a minimum and the animal refuse raised to a maximum, the results would be the most complete. Asparagus delights in a sunny location and will respond to food which is all ready for plant absorption very promptly. The most complete manure is barnyard dung containing very little coarse litter. The product from out-door-closets which have been kept inodorous by the free use of clay, dust, or coal ashes, as absorbents, makes a fine fertilizer for asparagus, and it is under treatment with this material that the largest recorded shoots have been grown. The asparagus row is a good place for throwing the wood ashes.

The keenest satisfaction may be derived by the amateur gardener from the growth of immense shoots of this garden esculent. They develop so rapidly in the growing season that hope is not long deferred after the shoots begin to thrust their heads through the surface. But at the outset one must wait for the first crop until two years from the setting of the plants, when a short season of picking may be made.—C. W. GARFIELD, before *Michigan State Hort. Soc.*

RASPBERRIES.—There has been no such change in the list of raspberries as with strawberries. Nearly the same varieties stand at the head of the list as held that position five years ago. Of the black caps the best that can be named are Tyler, Ohio, Hilborn, and Gregg, given in the order of earliness. The Palmer is much like the Tyler, perhaps being an improvement in vigor and productiveness. The best of the red sorts are Marlboro, Shaffer, Reliance and Cuthbert. The best for home use of the whole list is the Shaffer. A variety called the Muskingum resembles the Shaffer and is superior to it for market purposes, being firmer; but is no better for home use. Neither the Reliance nor Cuthbert succeed in all localities, but, where they are at home, are very profitable. The Cuthbert is the latest of the reds, and the Turner the earliest of those named. Thompson's Early Pride, a variety not fully tested, is very early and quite promising.—*Ohio Experiment Station.*

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

Among the Farmers.—During the month of January just passed the Department of Agriculture has sent out eight deputations to speak at ninety-four Farmers' Institutes, each consisting of a Professor from the Agricultural College, a practical farmer, and a practical fruit grower representing our Association.

The interest in these meetings is rapidly growing among farmers, and will soon surpass even their interest in political gatherings, for which they are so noted. Throughout Southern Ontario the topics, discussed by the fruit grower on the deputation, receive as much if not more attention as any others, a proof of the wisdom of including that department of industry among the subjects discussed. Hitherto fruit culture has been boomed by nurserymen and their agents, some of whom have spoken in such extravagant terms of the profits accruing from it, or of the wonderful merits of some new and untested fruit, that farmers generally look with much discredit upon any statements under this head. But now that fruit growers themselves are to speak of their own business, we may expect only such statements as are backed up by practical experience, and having no interest in inducing others to compete with them in their line of industry, they will be inclined to leave off the glitter, and speak less of the profits of fruit culture than of the best methods of meeting the difficulties in the business, and the best means of reaching the best markets.

Intensive Farming.—There is no doubt that many of our farmers are land poor. Could they be persuaded to devote the same attention to one-half or even one-quarter the amount of land, there would be some adequate returns. The other day, for example, a farmer was pointed out to us who was the owner of several large farms, and yet was always hard up, and was making no money; and about the same time we met with a commercial traveller, who, having a great

taste for gardening, gave much of his leisure to cultivating vegetables and fruit. Two years ago he actually sold off ⅘ of an acre of celery and other products, amounting to the sum of $400, as much cash as many farmers take off one hundred acres. Too often, where little stock is kept, the manure that ought to go on one acre is scattered over ten, the seed sown after half working up the soil, and what wonder if failure results? Something more is needed nowadays than a mere tickling of the soil to get any profit out of fruit culture or any other line of husbandry.

CELERY AND TYPHOID.—It has been claimed by some writers that the use of unclean manure should be avoided in the garden for fear of the absorption of injurious particles by the juices of the plants. But the best sanitarians and students of vegetable physiology, assure us that no fear need be entertained under this head, as no injurious substances have ever yet been detected in vegetables or fruits from the use of such manures.

An article, however, in the *Medical Journal*, states that there is a danger of disease in the use of such vegetables as are not prepared for the table by boiling, on account of injurious particles which may cling to the exterior, or lodge in the interstices.

Celery, for instance, is a vegetable which is often brought on the table with very scanty use of water, and indeed it is only with the most careful attention that the small particles of filth can be entirely washed out from the interstices between the stalks. Now it is well known among medical men that the bacillus of typhoid fever is frequently found in night soil, a manure which is so highly valued by market gardeners, who frequently apply it to their growing vegetables, in a liquid form. The danger of some particles of this filth clinging to the stalks of celery, after a careless washing, is evident; and we, therefore, wish to warn our readers of the danger in this regard, and to advise the most fastidious care in preparing this vegetable for the table.

A MEMBER BENEFITED.—Mr. Chas. Ellis of Meaford writes that a subscriber in that town reports that the CANADIAN HORTICULTURIST was the means of putting in his pocket the sum of $80, by keeping him posted on the prices of apples and enabling him to sell in the best markets.

We hope to have arrangements made to get fuller reports of all the best markets during the coming season, and thus to help the fruit growers as much as possible.

BABY EDINA.

For the Canadian Horticulturist.

Lines written on the very beautiful child of Mr. Corbett, Foreign Freight Manager of the C. P. R.

HERE gat ye your 'een sae blue ;
Hae ye been gazing on the skies,
So they reflected back on you
The beauty o' their azure dyes ?

Where gat ye your golden hair,
Like silken tassel o' the corn ;
How came ye by that sprightly air,
Like sparkling dew on sweet hawthorn ?

And where gat ye those lovely cheeks ?
Like peaches o' a Western clime ;
And voice as when a brooklet meets
A laughing brooklet o' its kind ?

And see those pouting, rosy lips,
Can anything be half as sweet ?
From top to toe, and finger tips,
She is a Cupid so complete.

Her dimpled arms, see how she flings
Around her mammy's neck ;
God-forfend she'd spread her wings,
Her mammy's heart would break.

Grandma Gowan.

Question Drawer.

EXPERIMENTS WITH GOOSEBERRIES.

SIR,—I have given the potassium sulphide a trial season for gooseberry mildew. I applied it early, before any signs of mildew appeared, upon Industry bushes. The result was the foliage was kept clean and bright, and the bushes made quite a growth of new wood. Not having a syringe, the mixture was applied with a watering-can. The bushes being dense, the under part did not possibly receive its share, and here the fruit mildewed badly, and rotted, while, on the more exposed parts, the fruit was free.—STANLEY SPILLETT, *Nantye.*

ANTS.

SIR,—Will your Association kindly inform the public generally as to the best means to keep ants out of a greenhouse.—THOS. COTTLE, *Clinton, Ont.*

Reply by N. Robertson, Supt. Government Grounds, Ottawa.

This would be a rather laborious task as they will enter by the smallest crevice. But I expect an answer more directly applied will be, How to get rid of them when they are in? This is a thing I never was troubled with. I, therefore, cannot recommend with experience. Various cures are suggested. If they are dispersed all over the house, traps, such as pieces of bones or meat, a sponge soaked in treacle, on which they will congregate in great quantities, lifted and immersed in boiling water. Chloride of lime, sprinkled in small quantities on their runs or holes, is said to be a perfect guarantee that they will leave the house in a few days.

CINERARIAS.

SIR,—What causes the leaves of the Cineraria to curl up?—T. C.

Reply by N. Robertson.

Various causes may be attributed to this, as green fly, red spider and too high a temperature, or a dry atmosphere. To cultivate the Cineraria properly, a cool house, partially shady, is necessary. They do not stand much fire heat. They are very subject to vermin, and must be kept cool and moist to be succeeded with.

PRUNING MAPLES.

SIR,—What effect will pruning have on maple trees if done at this time of the year, and what is the best time to cut maple when large limbs have to be removed.—T. COTTLE.

Reply by N. Robertson.

When large limbs are to be taken off, the best time to prune maples is early in the fall, so as to allow the wounds to dry up. As we near the spring, the risk of bleeding is always greater. A fresh cut loses sap that would be beneficial to the growth of the tree, and, therefore, cuts should never be done late in the winter.

ONE *VERSUS* TWO YEAR OLD VINES.

SIR, —Are the grape vines usually sold by nurserymen as No. 1 one year old, and No. 1 two year old really of those respective ages, or is it simply a matter of grading one seasons vines and making that distinction?

In planting some three thousand vines next spring would you recommend me to set out No. 1 one year vines or No. 1 two year vines, and if the latter, should they be cut back to one bud in the same way as No. 1 one year vines would be?

R. B. BLAKE.

Reply by Mr. S. D. Willard, Geneva, N. Y.

Grape vines as usually sold by nurserymen are of the respective ages as stated, one or two year as the case may be. Our experience has been in favor of planting one year vines as a rule, and yet something depends on varieties and seasons. Some weak growing sorts would do better if two year old, and if the seasons had been unfavorable for maturing and rooting a vine properly at one year, we should give preference to a two year vine and cut back same as we would a one year.

FERTILIZERS FOR STRAWBERRIES.

SIR, —I have about two acres strawberries planted spring 1890, on sandy loam of not very good quality. 1. Would it pay me to apply some commercial fertilizer? 2. What would be best? 3. When should it be applied? 4. What quantity per acre?

J. P. W.

It always pays to fertilize the land well for strawberries. The best for them is plenty of barn yard manure, rich in nitrogen, which should properly be worked in the soil previous to planting. Dried blood is a special fertilizer for the strawberry, and should be applied between the rows, at the rate of three or four hundred pounds per acre. Commercial fertilizers are excellent if not adulterated; they cost about two cents a pound. A cheap fertilizer may be made by adding 100 pounds of sulphate of ammonia and 100 pounds bone meal to 40 bushels of ashes, for one acre. The best time to apply these is about the month of May.

GOOSEBERRY NOTES.

SIR,—Fall, 1886, I planted 350 Houghton's. Summer, 1887, bushes made good growth, and the tips mildewed a little.

1888—Fruited a little, mildewed badly. I applied lime, sulphur, ashes, sulphate of iron; checked mildew very little, if at all. I also noticed a few bushes where the green fly had worked.

1889—Mildew not as bad as 1888. Green fly worked at the tips of *many* of the bushes. Fruited well.

1890—Scarcely any fruit; green fly worse than 1889. (N.B.)—Plums are planted in every alternate row. I have Downing & Smith's Improved in same garden, but the texture of the leaf being different, the fly do not trouble them. Smith's Improved shed their leaves. Downing does well, also White Smith. Industry and Golden Prolific not any use. Crown Bob and some others with English blood, not fully tested.

What can I do for the green fly? (Aphis.)

J. P. WEEKS, *Horning's Mills.*

Try Kerosene emulsion for the green fly, made according to the following recipe:—Soft soap, 1 quart; 2 quarts hot water; 1 pint kerosene. Stir until all are permanently mixed, and then add water until the kerosene forms one-fifteenth of the whole compound.

Our Markets.

THE APPLE MARKET this year has been unprecedentedly high. A correspondent in Peterboro' writes that he is shipping apples to Montreal in half bushel baskets, and receiving as much as 90c. each for them. And in that section the apple crop has been so good this season, that it will no doubt result in great encouragement of the fruit growing industry.

In the New York market, choice Greenings and Baldwins are quoted by Mr. G. S. Palmer, at from $4 50 to $6.00 per barrel. The Montreal Market at about the same figure, with, however, the warning clause, that inferior qualities are a drug in the market, at a range of from $1.00 to $3.00 per barrel.

In Great Britain the prices are on the whole advancing. Baldwins are quoted at from 25 to 27 shillings. The King has been sold as high as 40 shillings, and the Newton Pippin has actually reached the enormous value of 60 shillings per barrel.

LIVERPOOL MARKET.

Messrs. Woodall & Company of Liverpool, write under date of Jan. 17th, as follows: Receipts are from Maine and Canada and also a few from New York, the bulk of which showed excellent quality and condition, the exception being where some lots had got touched with frost. There has been a brisk demand throughout the week at advancing prices, closing at yesterday's sales with an improvement on a shipment of Canadian 7/ to 10/ per barrel. Should supplies next week be equally small a further advance may be confidently expected.

Quotations for the Week for Sound:—New York:—Russets, 18/3 to 23/; Ben Davis, 25/ to 26/6; Newton Pip., 30/ to 33/.

Maine:—Baldwins, 23/ to 28/6; Baldwins 2nds, 16/ to 22/; Greenings, 18/ to 26/6; Kings, 28/6 to 39/; G. Russets, 25/ to 25/6; Spy, 19/ to 28/.

Canadian:—Greening, 30/ to 39/; Spy, 32/6 to 36/6; Baldwins, 30/ to 39/; G. Russets, 31/ to 34/.

Our Book Table.

REPORTS.

Annual Report of the State Board of Horticulture for the State of California, for 1890, with the compliments of B. W. Lelong, Secretary State Board of Horticulture. A work of 522 pages, bound in cloth, and carefully indexed, containing a great deal of valuable information for fruit growers, especially for fruit growers on the Pacific coast. Much of it is also interesting to us in Ontario, as for instance, those portions dealing with fungoid diseases, injurious and beneficial insects, and the use of commercial fertilizers. There are several colored plates in it, and altogether the work is of considerable value from a scientific standpoint.

Fourteenth Annual Report of the Montreal Horticultural Society, W. W. Dunlop, Secretary. This report, always full of interest, is this year even more full than customary. Among the subjects touched upon, we notice an article by Dr. Hoskins on Ironclad apples; five varieties of apples for profit, by G. E. Roach. Marketing aspects for fruit growing, by A. T. McBride, Montreal. Summer pruning of grapes, by W. Mead, Patterson, and Sod in orchard, by J. C. Chapais, of St. Dennis. Also, discussions on Blackheart in Canadian varieties, apples for home use, etc. It would be a very advantageous thing for both provinces could a complete exchange of reports be made, so that every member of each Society could have both reports.

Transactions of the Maine State Pomological Society for the year 1889, D. H. Knowlton, Augusta, Secretary. This is another report that is of interest to us Canadians, because the climatic character of the State of Maine corresponds closely with a good deal of the northern parts of Ontario. The following are some of the subjects discussed:—"Four acres enough; Fungus diseases of fruits; How should we maintain the price of Maine apples; Pear culture; Condensed fruit list, etc."

CATALOGUES.

The Steele Bros. Co's. (limited) Seed Establishment, 1891, 132 King Street east, Toronto. Seeds, Bulbs and Plants, for 1891, and containing illustrations and descriptions.

James Vick, Seedsman, Rochester, N. Y., Flowers, Bulbs, Vegetables and Plants, etc., etc.

Oranges and Vegetables of Florida, published by Bradley Fertilizer Co., 27 Kilby Street, Boston. Well illustrated. Free on application.

Improved Excelsior Incubator. Geo. H. Stahl, patentee and manufacturer, Quincy, Ill.

Green's Nursery Co., Rochester, N.Y. 1891. Chas. A. Green, Manager.

Lovett's Guide to Horticulture, Spring, 1891. J. T. Lovett Co., Little Silver, N.J.

John A. Bruce and Company's 40th Annual Catalogue of Seeds. Office and Warehouse Corner King and McNab Sts. Hamilton, Canada.

Gregory & Sons' Retail Catalogue of Warranted Vegetable, Flower and Grain Seeds, grown and sold by James J. H. Gregory, Marblehead, Mass. Free on application, 1891.

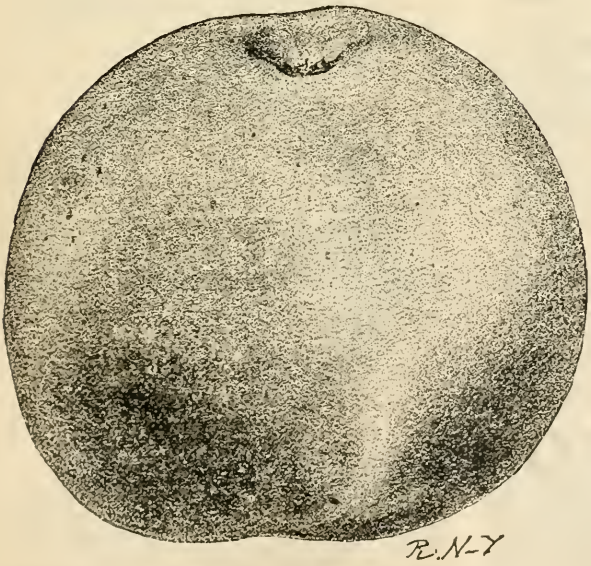
Plants for Florists, Welsh Bros. Wholesale Price List of Florists stock. Hamilton, Ont.

BOOKS.

"Raise the Flag," and other songs and poems. Rose Publishing Co., Toronto. An attempt in the right direction, for it is certainly important that a taste for Canadian patriotic songs should be developed in our country.

The Dominion Nurseries,

St. Catharines, Ontario.



Is the headquarters of the new dessert apple PRINCESS LOUISE, which, in addition to all its former prizes, medals and recommends, took the first prize as the best Canadian seedling dessert apple at the late Dominion Fruit Growers' Association in Ottawa.

Also, headquarters for the Pearl Gooseberry, Saunders' New Black Currant, Niagara Grape, and all other kinds of Trees, Vines, Shrubs and Plants We deal directly with Planters, and guarantee satisfaction. If you intend planting anything in the nursery line send us a list of your wants and get our prices before giving your orders Catalogue and price list sent free upon application.

Small tress, plants and vines mailed to all parts of the Dominion. Address

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For 1891 will be mailed FREE to all applicants, and to last season's customers. It is better than ever. Every person using *Garden, Flower or Field Seeds,* should send for it. Address
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SIR PHILIP MILLER, the great English Horticulturist, writing in 1740, says: "The best method to have Cabbages good is to procure fresh seed from abroad every year, for it is apt to degenerate in England in a few years."

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Feb 3t.

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Ontario Fruit Growers Association

Paying $1 to the Secretary are entitled to receive:

(1) **A Bound Copy** of the Annual Report of 1890, containing full reports of all papers and discussions on the subject of Fruit Culture, well worth $1 to any fruit grower.

(2) **The Canadian Horticulturist,** a monthly journal especially adapted to Canadian fruit growers. The only journal in the interests of their own industry. Most papers on fruit growing are published by nurserymen in the interests of nurserymen.

(3) **A Choice** from the following list of Trees, Plants, etc., for testing:

I. **Russian Apple.** Golden White.

II. **The Mills Grape Vine.** A high quality Black Grape, said to make raisins. It has been sold by Ellwanger & Barry at $1.75 each. It originated with the late W. H. Mills, of Hamilton, who last winter gave the Fruit Growers' Association his whole stock.

III. **The Williams Strawberry.** A new Canadian variety which has created a great sensation about Brantford. It is a cross between Crescent and Sharpless and possesses the merits of each.

IV. **An Unbound Copy of the Canadian Horticulturist,** vol. i., ii., iii. or iv. These have no colored plates, but contain much valuable information.

V. **Triumphe de Vienne Pear.** A new and valuable French Pear, larger than Bartlett and of excellent quality.

VI. **Two Cannas, different colors.** These form one of the handsomest plants for a bed on the lawn, beautiful both in foliage and in flower.

VII. **General Jacquemot Rose.** This is one of the most satisfactory red roses for the lawn, a free bloomer and vigorous grower.

VIII. **Two Dahlias.**

N.B.—These should be selected at once, as we are making up the lists, and they will be sent up early in Spring.

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All Agents may retain 20 cents for each new subscriber, or two renewals; but in place of this commission they may have, for each, one choice from the list of plants above. In case there are five or more in one Club, from the following additional list, which will be sent to one address by express prepaid.

IX. **Princess Louise Apple Tree,** 5 to 6 feet high.

X. **Yellow Transparent Apple Tree,** 5 to 6 feet high.

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XIII. **Niagara Grape Vine,** 2 years, first class. The most productive of White Grapes.

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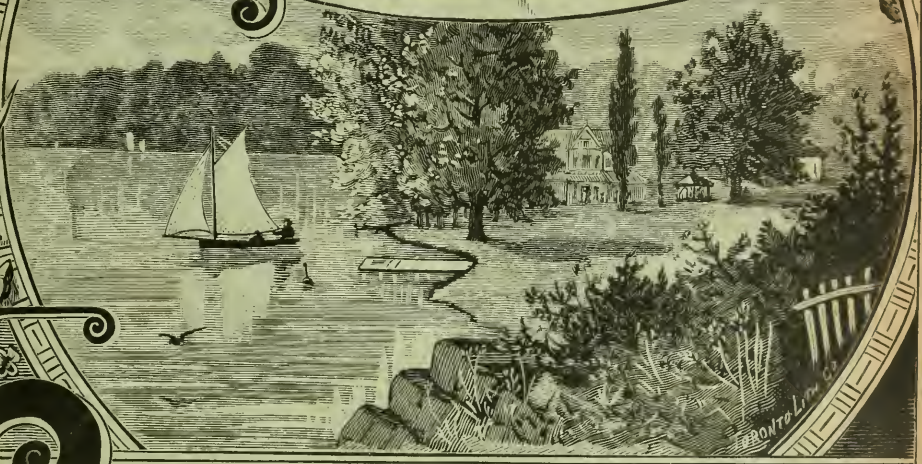
L. WOOLVERTON,

Secretary of the Ontario Fruit Growers' Association,

GRIMSBY, ONT.

The Canadian Horticulturist.



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EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

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HAMILTON, ONTARIO.

Manufacturer of the following High Grade of Fertilizer:

Sure Growth, Grape Food, Pure Bone Meal, Dissolved Bone, Farmer's Pride.

TESTIMONIALS.

W. A. FREEMAN, Esq., Hamilton, Ont. Niagara Township, Jan. 16th, 1891.
Dear Sir.—The Fertilizer purchased from you last spring was used on grapes with best of satisfaction, securing a splendid crop free from mildew (grapes through this section were very much affected with mildew last season). I can recommend it as a good manure. Signed, PORTER ADAMS.

W. A. FREEMAN, Esq., Hamilton, Ont. Galt, Jan. 21st, 1891.
Dear Sir.—Used your Fertilizer on grapes, raspberries, strawberries and other small fruits, with best results. Also on potatoes, securing a better yield of large smooth stock. I can recommend it to anyone wishing a good manure; you can depend on me as a regular customer, as I always intend using.
Signed, JAMES FINDLAY.

W. A. FREEMAN, Esq., Hamilton, Ont. Niagara, Jan. 28th, 1891.
Dear Sir.—I used your Grape Food Fertilizer on peaches and pears, receiving a very abundant yield, the largest crop I ever had, and am pleased to place my order for over one ton more for the coming season's use.
Signed, J NIVEN.

W. A. FREEMAN, Esq., Hamilton, Ont. Burlington.
Dear Sir.—The Fertilizer bought from you last season was used on different crops with great results. Raspberries, picked $150.00 worth from one-half acre, best crop I ever had. Tomatoes and celery gave forth extra good yield, and there is nothing to equal it for growing tomato and celery plants. I will always use it. You will please send me another ton as I cannot afford to farm without it. Signed, J. W. BRIDGMAN.

W. A. FREEMAN, Esq., Hamilton, Ont. Burlington.
Dear Sir.—The Fertilizer purchased from you last spring was used on young peach trees, new strawberry patch and celery, which gave best satisfaction. Peach trees gave three feet new wood to less than one foot where none was used. I consider there is nothing to equal it for celery and strawberries. Signed, P. Y. BABCOCK, J. M. BABCOCK, W. E. BABCOCK.

W. A. FREEMAN, Esq., Hamilton, Ont. Trafalgar, Jan. 1891.
Dear Sir.—I saw your Fertilizer used by a neighbor last season on turnips and raspberries, which were planted on ground that had not been manured for at least 15 or 20 years, (consequently very poor) and can safely say there never was better crops grown in this section than they were. I am pleased to give my order for what I will want for this season's use, and can recommend it to others as a good manure. Signed, JAMES E. EARL.

W. A. FREEMAN,

Feb. 6t.

Mention this paper. 255 to 265 JAMES ST. N., HAMILTON.

Send for Catalogue and Price List. **Wanted, pushing Agents.**

NORTHERN GROWN TREES!

PORT ELGIN NURSERY.

All kinds of Nursery Stock CHEAP! CHEAP! Catalogue and Magnificent Dahlia for two 3c. stamps to pay postage and packing. CATALOGUE ALONE, FREE! It tells the whole story.

3t. **J. H. WISMER, Port Elgin, Ont.**

Home Grown, Honest, Reliable.

I offer you my Vegetable and Flower Seed Catalogue for 1891 **FREE.** Note the immense variety of seed it contains, and that all the best novelties are there. Not much mere show about it (you don't plant pictures) but fine engravings from photographs of scores of the choice vegetables I have introduced. Would it not be well to get the seed of these from first hands? To be the oldest firm in the United States making mail and express business a specialty proves **reliability.** Honest and honorable dealing is the only foundation this can rest on. My Catalogue is **FREE** as usual. A matter on second page of cover will interest my customers. **J. J. H. GREGORY & SON, Marblehead, Mass.**

THE WINDSOR CHERRY.

FOR CANADIAN HORTICULTURIST.

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THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 3.

THE WINDSOR CHERRY.

THE Windsor Cherry, which forms the subject of our frontispiece for this number, takes its name from the town of Windsor, Ont., where it originated on the grounds of the late James Dougall. It was bought up by Messrs. Ellwanger & Barry, of Rochester, who have introduced it to public notice, and therefore it has been first tested in the State of New York. It has been favorably mentioned every year of late in the report of the Western New York Horticultural Society, and appears to have now attained an established reputation as the best late, sweet black cherry. In season, it is a little later than the Elkhorn, or Tradescant's Black Heart, a variety which is a prodigious bearer of fine large fruit, and firm enough for shipping any distance; but, unfortunately, the latter is inclined to rot in moist weather, a fault which it has in common with most of the Bigarreau class, and one to which we hope the Windsor may prove an exception. The great value of this cherry to us in Canada is its hardiness, and, should it prove to be in this respect all that is claimed for it by its introducer, it will extend the line of the profitable culture of the finer varieties of the cherry farther north than has hitherto been possible. In southern Ontario the Windsor will also be highly valued on account of its season, for it will keep up the supply of fine cherries well on toward the end of July.

CHERRY GROWING IN ONTARIO.

IN selecting varieties of fruits for planting, either in the home garden or in the commercial orchard, one very important consideration is the choice of such varieties as will best cover the fruit season; for, in the first place, it is very important to have a successive supply for our tables, and, in the second place, it is necessary to carefully avoid causing a glut in the market, at any one time, of any particular variety of fruit. With those who are situated in southern Ontario, where the choicer varieties of cherries may be grown, there is perhaps no line of fruit culture more encouraging than the production of the finer varieties of this fruit. There is scarcely any more competition in the offerings of this fruit than in peaches, and the price, therefore, is usually up to a very satisfactory figure. We have tested, at Maplehurst, a large number of the finer varieties of the Heart and Bigarreau cherries, and although, even in this favorable locality, the fruit buds are often cut off when the temperature goes beyond ten degrees below zero, yet, on the whole, we have found them to be a decidedly profitable crop. Probably no fruit would be more so, were the yield regularly abundant, but two years out of three there is more or less of a failure, from one cause or another, in the case of the choicer varieties; and therefore we would not be justified in recommending them for general planting in this Province. Fortunately, however, we have varieties such as the Kentish, Early Richmond and Montmorency, which can be widely grown in this country, and we are introducing from Russia some still more hardy kinds, such as the Ostheim, the Vladimir and the Bohemian Queen, which will no doubt be able to stand even the climate of our cold north. The pie cherries are so much in demand in our markets for culinary uses, that they are steadily advancing in value, and little behind the others in the matter of profit to the grower.

The following is a list of Heart and Bigarreau cherries that have succeeded well with us at Grimsby, selected with a view to cover a season of about six weeks, from about the first week in June until about the third week in July:—Early Purple, Governor Wood, Knight's Early Black, Great Bigarreau, Black Tartarian, Elton, Napoleon Bigarreau, Black Eagle and Elkhorn. To these we add the Windsor with great confidence, on the authority of many prominent fruit growers of Western New York.

THE KIEFFER PEAR.—Some of the nursery agents who are selling stock in this part of the world, are recommending the Kieffer pear. Our readers, doubtless, know better than to invest in any such stock. In the South, where it is difficult to grow fine pears, the Kieffer and Le Conte are better than no pears, and may there be successfully grown. But in this latitude it is practically worthless. The stories told about its being blight proof are pure fiction—it blights just as readily as any other variety.—*Orange County (N. Y.) Farmer.*

STARVING ORCHARDS.

IT is a very common mistake of growers of the apple and pear to suppose that they need very little manure. While still young they are kept thrifty by manure applied to the crops, but when once they reach bearing age they are left to shift for themselves, and when they cease to grow with any vigor or to yield scanty crops of scrubs, he blames the orchard for its barrenness when he should blame himself for starving it.

It has been stated on very good authority, that a crop of one hundred barrels of apples per acre, draws as heavily upon the soil as a crop of one hundred bushels of wheat. In support of this, we call the attention of our readers to the following table, showing the amounts of the most important fertilizing elements which are withdrawn by three of our most common fruits. The first line for example, shows that 1000 pounds of apple substance contains $\frac{80}{100}$ of a pound of potash, and, therefore, a crop of 20,000 pounds takes from an acre twenty times that amount, or sixteen pounds of potash.

APPLES.	Potash. lbs.	Phos. Acid. lbs.	Nitrogen. lbs.
1000 pounds.....	.80	.03	.6
Crop of 20,000 pounds per acre...	16	6	12
PEARS.			
1000 pounds.....	1.8	.5	.6
Crop of 20,000 pounds per acre...	36	10	12
GRAPES.			
1000 pounds.....	5.0	1.52	1.70
Crop of 10,000 pounds.....	50	15.20	17

But the great question is, how to get enough manure to feed these orchards; for that from the barnyard is altogether insufficient. Well, the commercial fertilizers are excellent and even 200 to 300 pounds per acre will have a marked effect, while 600 pounds per acre is none too much.

The cheapest fertilizer for orchards on sandy loam is our common wood-ashes. Our American friends appreciate their value and are buying Canadian ashes by the car load to enrich their orchards and gardens. Canadians so little value them that they sell at five cents a bushel to speculators, and then they

buy commercial fertilizers at $2.00 per bushel, many of which are adulterated. Ashes are worth twenty-five or thirty cents a bushel for the potash and phosphoric acid they contain, and this is their real market value in the United States as a fertilizer.

For some soils wood-ashes alone give excellent results with fruit crops, but in most soils phosphates and nitrogen should also be added in some form. Prof. James of the Ontario Agricultural College gives the following as an excellent recipe for making a complete manure for one acre, viz. :

40 bushels	woodashes @ 10 cents	$4 00
100 "	crushed bone @ 1½ cents	1 50
100 "	sulphate of ammonia @ 3 cents	3 00
	Total cost	$8 50

He further stated at our winter meeting, that a commercial fertilizer of the same value for an acre would cost $12.50.

LOCAL HORTICULTURAL SOCIETIES.

THE subject of the formation of local Fruit Growers' Associations, in affiliation with the Ontario Fruit Growers' Association, has often been brought up for consideration at our meetings ; and although it was acknowledged that such societies would be very useful, the subject was dropped for want of a practical plan of operation. If we could have local societies in affiliation with our Association, and thereby entitled to receive all our publications, as well as help from us at their annual meetings for discussions of topics on fruit culture, they in turn agreeing to send one or two delegates to our annual meeting, there is no doubt at all that great mutual benefit would result. We might further incorporate in our annual report some account of their work, together with a list of their officers, and any important papers read at their meetings.

At our last annual meeting this subject was brought up for discussion, and it was suggested that possibly all necessary machinery for the formation of such local societies was already provided in the "Agricultural and Arts Act." Accordingly some of our members, in various places, are now making an effort to organize, under the provisions of that Act, local associations under the name of Horticultural Societies.

It is evident to any one, who carefully studies the Act referred to, that its chief objects are to provide for the holding of meetings for the discussion of horticultural topics, and to circulate horticultural literature ; it is also evident that this object has been almost wholly neglected by the Horticultural Societies now in existence. Our proposition is to form societies in which these features will be prominent, and thus more fully carry out the true intent of the Act.

Mr. Thos. Beall, of Lindsay, writes that an attempt is being made in that town for the formation of such a society, and he says the plan proposed is as follows :

" A declaration in the form of schedule B. to the Agricultural and Arts Act will be circulated for signature, and as soon as 50 names are obtained the " declaration " will be forwarded to the Minister of Agriculture, who will then cause a notice to be inserted in the *Ontario Gazette*, see Sec. 61 to 64 " Agricultural and Arts Act." We shall then receive from the county society, at the proper time, our proportion of the grant to the county, which will be, perhaps, $50.00 or more. The Society will be called, however, a Horticultural Society, and not a Fruit Growers' Association. But this will make no difference to us, as the main object will be attained, and money will at once be sent to the Ontario Fruit Growers' Association sufficient to make each member of our Society a member of the Association, and you may observe by Sec. 38 and its five sub-sections, that the object of the Horticultural Society is identical with the proposed branch of the Fruit Growers' Association.

WINTER MEETING—II.

OUR old friend, Mr. Fred Mitchell, of Innerkip, was present at the Wednesday evening session. An enthusiastic rose grower, he was brought to his feet by an able paper on Rose Growing, which had just been read by Mr. Webster, of the firm of Webster Bros., Hamilton, and which will appear in full in the annual report. Mr. Mitchell gave the following choice of roses, one of each color, for the amateur's garden. Prince Camille de Rohan (dark), General Washington (red), Paul Neyron (pink), and Coquette des Alps or Madame Plantier (white).

A discussion arose upon which is the best paying red grape. Two prominent grape growers, Mr. Carpenter, of Winona, and Mr. Orr, of Stoney Creek, gave their opinions. The former pronounced the Lindley as the most profitable, and the latter the Delaware. In reply to the question as to whether Moore's Early succeeded in heavy soil, Mr. Orr said that it had done well with him in such soil, but Mr. Tweedle had not found it nearly so productive as the Worden.

Prof. James, of the Agricultural College, Guelph, gave a very interesting and instructive address upon Fertilizers. He stated that the leaves of trees are too valuable to be wasted, and should be kept upon the ground beneath, and there, in their decay, they will return a certain amount of potash to the soil. A large amount of the litter of pruning can also be used in a compost, and in this way is more valuable than burnt to ashes. Fruit draws very heavily upon the element of potash in the soil, and for this reason it is important to supply it liberally in fertilizers that are applied. Mr. James showed by a chart the great value of wood ashes as fertilizers for our fruit orchards, and this chart will be published in our report for 1891.

In speaking of apples for our northern sections, Mr. G. C. Caston, of Craighurst, recommended the following as an excellent list: Summer—Yellow Transparent, Duchess and Haas; Fall—St. Lawrence; Winter—Peewaukee, Golden Russet, Scott's Winter and Baxter, or La Rue. The last named is one of the best market apples grown in the County of Simcoe. It keeps till February and brings the best price of any variety, but during the last season it was badly spotted. Ben Davis is only half hardy in the County of Simcoe.

Mr. Caston advised any one living in the northern sections who wished an orchard to stand for a long time, to plant Talman Sweet and Tetofsky as stocks and top grafts upon these. In this way he found it possible to grow with marked success the Northern Spy and the King, varieties otherwise tender in that county; and a point of no small importance was that they were more productive and better in quality than when grown on other stock.

A more extended report might be given, but it would scarcely be in place, considering that our readers will receive it in full in our annual report for 1890.

OBJECTS OF PRUNING.

ANY blunders will be avoided if the true objects of pruning are kept in view. One of these is to encourage wood growth in the proper directions; another is to lessen the amount of bearing wood in order to secure the finest fruit.

The most approved time is during the winter months, but the later ones are usually thought to be safer, because the cutting of the wood renders it more susceptible of injury from cold. Little fear, however, need be entertained under this head in the case of the apple and pear, if the wounds are properly covered with paint or varnish. A good composition for wounds made in pruning is gum shellac and alcohol, mixed so as to form the constituency of paint. This may be applied with a small brush. The most common blunder in pruning the apple orchard is in leaving long stubs instead of cutting the limbs off close to the trunk or main branches. Such wounds cannot heal, but soon rot into the heart of the tree and cause a hollow trunk. All wounds should be cut close and as smooth as possible, and, if painted as described, will soon heal over and leave the tree perfectly sound. A writer in the *Country Gentlemen*, recommends pruning in September, and says that he has given it a fair trial and is perfectly satisfied that this is the best month for the work. There is no doubt that it is safe to prune at any time after the fall of the leaves, but we should question the advisability of undertaking a general pruning so early as the month of September, neither would many of us find leisure for such work during that busy month. Some people prune quite late in the spring, but this is most unwise, for the sap is not in a condition to heal the wounds before the middle of June.

The pruning of trees and plants is done in England much more systematically than with us, the object there being well understood to be the shaping of the trees, and, still more particularly, the improvement of the size of the fruit, this last object being attained by allowing only the best and most vigorous fruit spurs to remain. The time has come when we in Ontario also must learn the lesson that there is no profit in growing scrubby fruit, and that our trees must not be allowed to exhaust themselves in maturing seed of so much worthless stuff. This waste of the fertility of the land is as great as when it is allowed to produce a crop of weeds. No doubt we might avoid this by careful thinning out of the young fruit while it is still small, say in the month of June. If we could spare the time to go over our trees carefully and remove all gnarly and scabby fruit at that season, both of pears and apples, the result would be most satisfactory; but this is usually neglected, because work in Ontario presses fruit growers so much harder than it does in the cooler climate of England. The result, same however, may be attained by careful pruning, making it a point to thin out all poor and weak growing fruit spurs.

Grape pruning is also done during this month in many parts of Ontario. The methods of pruning are almost as numerous as are the vineyards themselves, but some growers appear to be neglecting it almost altogether, a course which results in the production of a great deal of inferior fruit. A great point in the pruning of the grape is to reduce the amount of fruit-bearing wood, in order that fine bunches may be secured, and this is usually accomplished by leaving fruit spurs of new wood having two or three buds each. Some say that thirty or forty buds are enough for each vine, but, in common practice, there is usually at least double this number, and in thus reducing the number of fruit buds lies a point of great economic importance.

The various methods are planned more with an eye for beauty and to suit style of trellis employed. The system which presents the best appearance to the eye is the "Renewal," which has often been described in this journal, and which may be again explained at any time if asked for by any of our readers.

The principles above explained, apply with equal force to the pruning of small fruits. In all our plantations too many canes are left to grow, and most of these have much slender wood growth, near the tips of which the buds are weakly and will produce a poor quality of fruit. All weak canes should be removed and the weakly growth of the stronger ones should be cut off with the grape pruning shears.

The Tree Cricket is a very common enemy in the raspberry plantation, and we frequently receive inquiries from subscribers concerning it. Now is the best time to destroy it, by cutting off all affected portions and burning them, together with the eggs of this insect which they contain.

The gooseberry bush, if neglected, becomes a perfect mat of prickly canes, interfering both with the production of fruit, and also with the gathering of the same. These should be well thinned out, not shortened in as in the case of the

currant, which would only tend to increase the difficulty described. Some gardeners, however, spur in the side shoots near the extremity of the canes in order to increase the size of the fruit. In the experience of some gooseberry growers the mildew is much less troublesome where the bushes are well pruned. This is a very important consideration in the case of the finer varieties, as, for instance, the White Smith or Crown Bob.

The currant needs different treatment from the gooseberry, and, while the number of canes that are allowed to grow should not be too many the strongest of these need to be shortened in every spring one-third of the new growth. This causes development of a large number of side shoots which are the bearing wood for the coming season. The fact is that with the finer kinds of currants, as, for instance, the Cherry and the Fay's, there is little fear of over-production, but, being strong feeders, they usually will mature a large quantity of fine sized fruit. Commoner varieties of currants, however, are inclined to over-bear, and are scarcely worth growing for market purposes. Buyers now a days want large sized fruit, and will pay two or three cents more a quart for the varieties mentioned than for any others we know of.

GROWING PEARS.

THE fact that pear culture is no longer seriously hindered by blight makes a few hints timely as to method of planting and culture. I have for many years grown pears headed low toward the ground. To secure such, I have sometimes negotiated beforehand with nurserymen to prevent their being trimmed up in the nursery. I prefer them branched out at three feet from the soil. The reasons are obvious. (1) They come to bearing as soon as dwarfs, thus saving three to five years before getting a crop, (2) For picking there is great advantage. You can gather the fruit for several years with a step-ladder. (3) All fallen fruit lies comparatively uninjured. (4) In case of drought the limbs shade the soil and equalize temperature. It must be born in mind that more damage to fruit occurs from severe changes of temperature than from extreme cold. (5) You are able to trim the trees as they should be without much trouble. Pear-trees should, for the first five or six years, be gone over twice a year. In midsummer cut out all superfluous shoots and suckers, and in November, head back the new growth one-third.

I also have for many years grown pear-trees as Dr. Meehan first suggested, "in grass." By that is not meant that the trees stand in sod, but that instead of being cultivated with the plow they be cultivated with the fork. Let the trees be well mulched with coarse manure or ashes of anthracite coal mixed with wood ashes. Turn this over and cleanse it of weeds once a year and thoroughly aërate it. It should be renewed once in two years. The principle is to keep the feet warm while the head is kept cool. The circle forked over should be

larger in diameter each year until it is eight or ten feet across. I use weeds for mulch if other material is scarce. Sawdust is good, especially after being run through the stable for bedding.

No manure whatever should be used in planting a pear-tree, but a top dressing of coarse manure is often needed. Some varieties require more food than others. The Seckel is a good eater and digests well. The Anjou is another. But the rule is, not to force or stimulate a pear-tree or a cherry-tree. But no fruit suffers worse from neglect. Choked by sod the pear fails to bear any fruit of marketable value.

The pear-tree is hardier than the apple and more easily grown. Its culture is never overdone. We could find market for a hundred times the present amount grown—only we must plant with regard to seasonableness. There is a pear glut, some years, during September. Pears that keep long, like the Anjou, Louise, Bosc and Clairgeau, are marketable from November 1st until New Year's, and always find ready sale. All in all our grandest market as well as table pear is Anjou. It is an ideal fruit. I pick it in early October and have it till Christmas. Another pear that I like well is Gray Doyenne.

Clinton, N. Y. E. P. POWELL, in *Garden and Forest.*

THE APPLE CURCULIO.

IN these days of close competition, when so many of us are entering upon the cultivation of fruits for market, only those who succeed in producing the very finest article will attain any real success in the work. One of the most important points in their cultivation is the production of clean and perfectly shaped samples. Last year, where the fruit was not treated with arsenites, fully one-third of the Bartlett pears in the Niagara district were stung by the Apple curculio, and a very large number of apples were affected in the same way. As a result of this injury a hard knot is formed in the fruit around the part affected, which very much disfigures it. At A. in Fig. 15 the reader will see a specimen of a deformed apple, such as is only too familiar to fruit growers who have to cull out such a large quantity as second class, just on this account.

The Apple curculio resemble the species infesting the plum, but it is a little smaller, being only about a quarter of an inch in length, inclusive of its proboscis. It is further distinguished from the plum curculio by four conspicuous bright red humps on the posterior part of its wing covers. Its name is Anthonomus quadrigibbus, the latter term having reference to these humps.

Formerly bred only in wild crabs and haws, it has of late become very

troublesome to our cultivated varieties of the apples and pears, doing its evil work during the months of July and August. The larva grows to about one-half of an inch in length, remains in the fruit until it is transformed, and then it escapes a perfect insect.

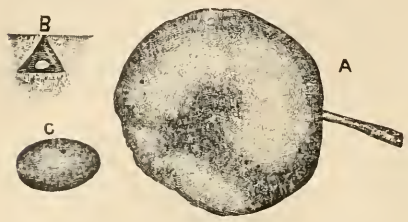

FIG. 15— APPLE AFFECTED BY CURCULIO.

Prof. Gillette, of the Ohio Experiment Station, has been making some observations which are worthy of being quoted here. He says :

"On June 13 last, I saw a female perform the entire operation of egg-laying, as follows ; First, a cavity was eaten in the apple (b), taking thirty minutes. The beetle then turned about and applied the tip of her abdomen to the small opening into the egg-cavity. In about five minutes she walked away without turning about to inspect her work. I at once plucked the apple but found no puncture in the skin, only a minute brown speck. The beetle had plugged the little opening with what appeared to be a bit of pomace, probably excrement. With a sharp knife a section was made through this egg-chamber, which I have endeavored to represent natural size, as above (b) with the egg at the bottom. Although it is almost impossible to distinguish newly stung fruit from external appearances, it becomes very easy after a few days when the infested apples become gnarly and ill-shapen as above (a)."

Picking off and destroying the infested fruit is entirely impracticable in a large orchard, and it would be foolish to advise the orchardist to go to work jarring his apple and pear trees in order to catch and destroy apple and plum curculios ; so that really our only hope for the extinction of this insect lies in the successful application of Paris green in the same way as for the codling moth ; and having ourselves, on several occasions, applied it with success, it will require a good many failures to destroy our confidence in, at least, the partial effectiveness of this remedy.

APPLE ORCHARDS IN NOVA SCOTIA.—We are in receipt of the Provincial Crop Report of Nova Scotia, dated December, 1890. From this it appears that the production of apples for the market is chiefly carried on in the so-called apple belt, between the north and south mountains, running through a portion of Annapolis and King Co's. The crop during the last season is below the average, amounting to about 73 per cent. of a full crop. Of varieties, the Ben Davis takes the lead for productiveness, having averaged 91 per cent ; the Rhode Island Greening, and Blenheim Pippin come next with 86 per cent., and next in descending order, are the Golden Russet, Cranberry Pippin, Baldwin, Northern Spy and King.

This differs from our experience in Ontario, where the Northern Spy has been the most productive variety during the season of 1890.

New or Little Known Fruits.

THE JONATHAN APPLE.

THOMAS MEEHAN, well known authority on horticultural matters, writes of this apple in the *Country Gentleman:*

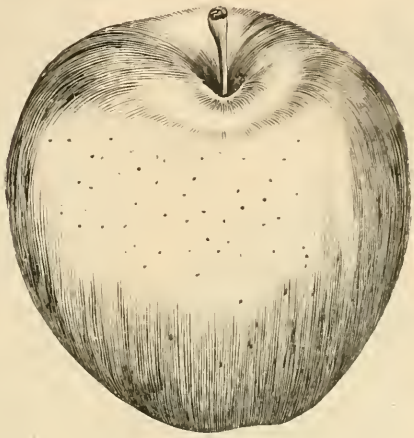

FIG. 16—THE JONATHAN.

I recently heard a prominent Pennsylvania orchardist say that if he were limited to one variety of apple, he did not know but that kind would be the Jonathan. The strangest commentary on this opinion is, that this apple has not even a solitary star to its credit for Pennsylvania in the catalogue of the American Pomological Society, though it is starred in a very large number of others, and in very many States double-starred, which indicates a high degree of popularity. It may be doubted whether many orchardists would place this on the unique plane my friend above cited would do; yet it undoubtedly combines in one variety a greater number of good qualities than many others.

It is in nice condition in November, and this does not soon disappear; it is just as good when the bluebirds and robins arrive in the Spring. It is not a large apple to be sure, but then it is not a small one, and the enormous quantity it yields makes up for a want of great size. Then it bears fairly well every year, which many of the monsters rarely do. Then, again, you can rarely catch it in a diseased or hide-bound condition. It seems to do as well in sand as in clay, in limestone, sandstone or in any other stone, and the rot troubleth it not. How few are so happy and contented!

In most cases we are told if we could be perfect in apple-growing we should go to our neighbor, learn by his experience what to plant, and be governed accordingly. In this way progress has a poor chance. At any rate, here is one that is safe to plant, though there may be no neighbor to consult within a hundred miles of us.

I have just been reading over a list of about a thousand kinds of Russian apples, which it is proposed to place on trial in our country. All right. But among the couple of thousand we already have, let us not lose sight of well-known kinds that have been tried in the balance and found not wanting.

The Garden and Lawn.

CLETHRA ALNIFOLIA.

PERHAPS no amateur in Ontario has experimented more faithfully in the line of flowering shrubs for the lawn than Mr. James Goldie, of Guelph; and he remarked to us the other day that his great discouragement with many of the more rare and beautiful ones was their tenderness. To our friends, therefore, who have no time to spend in experiment with shrubs of doubtful hardiness, we recommend with confidence the Clethra Alnifolia, as one that combines beauty and hardiness in a remarkable degree, and which is not yet as widely known as its merits deserve.

This shrub, though a native of swampy places to the south of us, has been proved to be adapted to almost any variety of soil. Mr. Meehan says he saw on one occasion a magnificent specimen, eight feet high and twelve feet wide, growing on a comparatively dry lawn, a finer and more vigorous specimen than he had ever seen in the swamps.

As may be seen in our illustration, it flowers in beautiful spikes of snow white blossoms, which measure from three to six inches in length. These are not only gratifying on account of their beauty, but also by reason of their delicious fragrance, which scents the air for some distance around. Another great merit which this flowering shrub has, is its period of blooming, for its flowers appear very early in the autumn, and continue almost until winter, a time of the year when there is very little other bloom.

Of late, this shrub has been much sought for among bee-keepers as a honey plant. It is very valuable for this use, because of its season of blooming, and because the honey made from it is almost white and very fine flavored. It also gives an abundant yield of honey.

Favorable notice is given this plant in our exchanges. The *Garden* says: "This is evidently a most delightful shrub to plant in broad masses by shaded woodland walks, or upon the margins of streams. It has this special merit, that it blooms at a season when flowering subjects are scarce, even in the best arranged shrubberies."

TRANSPLANTING TREES—"Take up enough earth with the roots to hold the tree erect when set on the surface of the ground." Observe—this rule complies with the requisites usually quoted at length. The sun's rays cannot reach the roots nor the air touch them; the moisture does not leave them for a moment; the soil is already prepared and remains fitted on them.—*Country Gentleman*

Fig. 17—Clethra Alnifolia.

THE SCARLET OAK.

QUERCUS COCCINEA.

THE brilliant autumnal color assumed by the large leaves of this handsome American Oak renders it a tree of particular value for ornamental planting, and a general favourite with cultivators of hardy trees and shrubs. Planted here and there amongst Birches, Horse Chesnuts, and Aspens, whose foilage usually dies off of a deep golden hue, the Scarlet Oak has a most distinct appearance, the large regularly loped leaves, which remind one much of those of some of the rarer Maples, dyed in crimson, being so distinct from everything else around.

For planting here and there around the margins of hardwood plantations, particularly such as skirt roads and drives, and from which it may be seen, few trees, in my opinion, equal the Scarlet Oak, for whether during spring or autumn it is at all times beautiful, the bronzy-red of the young shoots and deep scarlet of the fading leaves being very conspicuous. Just now in many of the woods at Holwood, the Scarlet Oak looks beautiful almost beyond description, for the fully developed leaves are, both in shape and tint, larger and brighter than I can remember to have seen them either in Scotland or Wales.

Few persons are aware, or have noted how beautiful are the young shoots of the Scarlet Oak; indeed, at that period of growth, when they assume a peculiar bronzy-red, they are quite as worthy of praise and notice as when steeped in their autumn hues. Second growths of this Oak are also rendered very conspicuous by the rich deep shades of red and bronze for which they are so remarkable. But not only for the richness of its foilage is the Scarlet Oak of value to us, for the whole contour of the tree is pleasing in the extreme, it being neat yet destitute of stiffness or formality, and therefore of especial use in ornamental planting.

A well-grown and well-placed specimen of this Oak is, indeed a desirable object at any time, and to be seen to advantage it should be planted clear of other trees, and all the better if backed up by a Pine wood or clumps of Yew and Holly. The contrast afforded either in spring or autumn by the scarlet of this Oak and blue and green of the Firs or Holly is peculiarly pleasing and far from common in our woods and grounds.

Some of the largest Scarlet Oaks I have seen are growing in gravelly loam and in almost pure gravel, and from my own observations of a number of trees, I think that this is the soil best suited for their perfect growth and development. A few days ago I was shown several young trees of the Scarlet Oak that some five or six years since were planted for purely ornamental purposes in a low-lying and damp meadow, but the experiment has turned out far from successful, the majority of the trees looking anything but healthy. Fine, strong, and well-grown

plants they were when planted, but gradually a change has come about, and these promising trees are now but lank poles with only a few branches, and tufts of foliage atop.

It is rather unfortunate that, as in the case of the purple-leaved Beech, there are several forms of the Scarlet Oak in cultivation, these differing greatly in the intensity of autumn leaf-coloring. Some of these that I have seen turn of a reddish brown before falling off, and at no time exhibit that wealth of scarlet for which the typical tree is so remarkable, and for which it is solely cultivated in this country.

Generally speaking, the Scarlet Oak requires but little attention in the way of pruning, for it is of gainly shape with a conical head of twiggy branches, and not at all inclined to ramify or expend its strength in the formation of clumsy side branches.

THE CHINESE SACRED LILY.

Sir,—Would you please tell me the proper treatment for the "Chinese Narcissus, or Sacred Lily." After it has flowered can it be kept for another year and how?

Yours, etc. A. R.

Reply by Anton Simmers, Toronto.

The bulbs of the Chinese Sacred Lily after blooming, should be allowed to continue growing as much as they will, and, when apparently quite completed, (which will be noticed by the foliage beginning to become slightly withered at the tips of the long leaves), the bulbs should be taken out of the water in which they have bloomed, and placed in a moderately warm room until the foliage has dried off, then place the bulbs in a pot of earth to remain there till the weather is quite mild, say in the month of May, when they should be planted in the open ground to "rest," as we term it. In the early fall the bulbs must be taken up and those which are sound and appear healthy, by planting indoors as usual, will in most cases give a nice display of bloom.

We have lost quite a number of our bulbs by leaving them too long in the open ground in the fall, which should be observed by others. They should be brought in as soon as weather is approaching the frosty night season."

PLANTING HOME GROUNDS.

MANY grounds are spoiled by the manner in which roads and walks are laid out, the kinds of trees and shrubs that are planted and the grading and surroundings of the house. The house should be built to correspond with the lay of the land and the surroundings. Thus a plain house with no gables, piazzas or ornamental work on it would be out of harmony with a rough, rocky site, and a house all cut up with peaks, gables, fancy siding and unique windows and ornaments would be out of place on a level plain. If the land is level and

plain, build the house to correspond, and if the site is rough, hilly or rocky, give the house an outward appearance in harmony with it. Do not lay out a straight walk or drive right up to the door, but bring in a few gentle curves, and hide the bare gravel by some shrubs along the borders. Neither is it in good taste to make the grounds a museum for all bright-colored, curious-shaped and unnatural-formed trees and shrubs which are called "ornamental."

If the grounds are small the trees and shrubs should be likewise, but if they are large and roomy there is a chance to put in some big trees. All objectionable places should be hidden by massive planting of close-growing shrubs, and borders may be planted in the same way. At the same time these will serve to beautify the grounds. If the grounds are small they may be made to look more extensive by judicious planting. Put the larger trees in the rear, and in front of them, and along the borders plant smaller ones. The line between the sod and the house walls should be broken by setting out some low bushes or vines over a low balcony. Some evergreens should be put out so as to have a winter as well as a summer effect. The best trees and shrubs can be found in the neighboring woods and may be easily transplanted, and then half a dozen bright colored and flowering ones may be bought at the nursery to add variety.—*Farm and Home.*

A MODEL FRUIT GROWERS' UNION.—The Hammonton, N. J., Fruit Growers' Union, handles, in favorable seasons, something like 2,000,000 quarts of blackberries, strawberries, raspberries and huckleberries, 70,000 pounds of grapes, and 4,000 or 5,000 bushels of pears. It does not auction off the fruits of its members, but acts as the agent of the wholesalers or city commission houses. On the one hand, the wholesalers are saved the expense of buyers, and on the other the growers get the highest prices possible for their fruits.

As the growers will deal only through the Union, they hold the key to the situation. The Union collects all the money due to the growers, traces up lost fruit and lost crates, and puts the legal screw on when a commission house refuses to pay up promptly. The Union is also a cöoperative society. It does a store business of $80,000 or $90,000 a year, dealing only in fertilizers, coal and other bulky articles needed by growers. Shareholders in the concern get 6 per cent. interest, and all profits are divided among the purchasers of supplies as well as members.

The Kitchen Garden.

THE NEW ONION CULTURE.

THIS is the title of the new book just published by Mr. T. Greiner, of LaSalle, N. Y., in which he attempts to show how it is possible to raise 2000 bushels of onions off one acre of ground!

An early start is the first point of importance which he lays down, and for this the seeds need to be sown, for the latitude of southern Ontario, from the 1st to the 15th of March, in a cold frame, or, if preferred, with a gentle heat. The accompanying illustration, Fig. 18, shows a small cold frame with a single sash, 3 x 6 ft., and being one foot high at the rear and about eight inches at the front. Five thousand plants may be expected from one ounce of seed, and, since about 130,000 plants are needed for an acre, it is evident that about one and one-half or two pounds of seed would suffice for this extent of ground. This is no small saving of expense by itself, for in sowing onions in the open ground in the old way, from six to eight pounds of seed would be required. It is easy to calculate the amount of glass that would be required when it is explained that each such bed is capable of growing about 9,000 plants.

The variety recommended by Mr. Greiner, as the best for this new mode of culture is the Prize-taker, which much resembles the large imported Spanish onion of our groceries, both in appearance and flavor; and, when well grown, will easily average a pound each. It is much preferred by the grocers to the ordinary variety, bringing in the Buffalo market $1.00 per bushel, when the other varieties are only worth 80 cents. There are some other kinds which might answer for this method, as for instance, the Spanish King, the White Victoria, and possibly, also the White Globe.

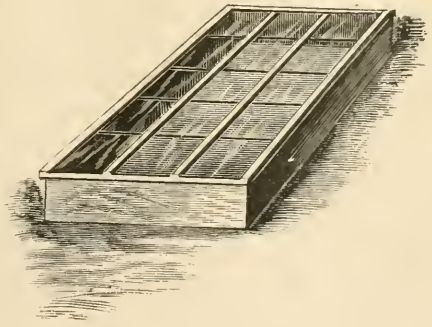

FIG. 18—COLD FRAME.

Over-watering the seed bed in a cold frame must be avoided, and as the season advances the sash may be removed entirely. In about six weeks from the time of sowing the seed, the plants will be quite large enough for transplanting into the open ground, and will appear as shown in Fig. 19. In this

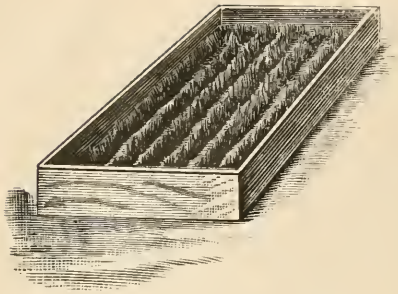

FIG. 19—PLANTS AT SIX WEEKS.

consists a large part of the work, and the expense of transplanting will not be less than $50 per acre; but Mr. Greiner claims that this is fully made up in the saving of hand weeding and thinning out, which results from this mode of treatment. The plants are set out four inches apart in the rows, and twelve inches between the rows, the ground to be first marked out in two ways and the plants set out with a dibble.

This book of Mr. Greiner.s is very cheap, and like his "How to make the Garden pay," must prove of great value to market gardeners.

HOME-MADE, BUT THE THING.

I HAVE had experience with several kinds of artificially heated hot-beds. But this cut illustrates the best thing I have tried. Besides being cheaply built it seldom gets out of order. My bed has a brick fire-box, with drain tile for flues. I located it on a strip of ground sloping to the south-west, with a fall of nearly one foot to the rod. Here I staked out the bed five feet wide and of the desired length. To lay the flues the earth was dug out two feet deep at the lower end and graded up to eight or ten inches deep at the upper. This made the heat at the surface of the bed about even, as the flues would naturally give out more heat nearer to the furnace. The tiles were then laid for the flues about a foot from the sides, and the earth filled back again with rich loam, the same as for any bed. The furnace I made two feet wide, and twenty inches high to the top of the arch, while the fire-box was nearly five feet long, so as to admit cord-wood without cutting. Instead of using mortar with the brick, clear clay was used, as this becomes brick when burned. An opening was left about one foot square at the rear of the furnace to admit the flues side by side, which was then made tight. The bottom of the fire-box is four or five inches lower than the flues, so that the ends of the flues will not choke up with ashes. In laying the tile cover the joints with sods to prevent the earth from sifting in. In building another I would advise using fire-brick clay tile, as I have found that the heat sometimes makes the drain tile crumble. Any kind of a covering can be made for such a bed. My plan is to set posts in the ground, to which boards eighteen inches wide are nailed on the north side and six inches on the south. If this frame is covered with muslin it will answer every purpose. I hardly think two flues of this kind would heat a bed six feet wide, though they do nicely in one of five feet. Three flues are hard to control because one is likely to get more than its share of heat. Five-foot beds can be covered with

two widths of domestic muslin. Provision should be made to keep water away from the furnace. If the ground isn't steep enough a ditch should be dug to drain the water off. An old stove-casting or piece of sheet-iron will make a door to the furnace. It must be carefully guarded when not in use or vermin will burrow in the flues. When the bed is wanted it will be necessary to start the fire several days in advance, but when the ground is thoroughly heated, comparatively little fire is required. To learn the temperature of the earth, I make

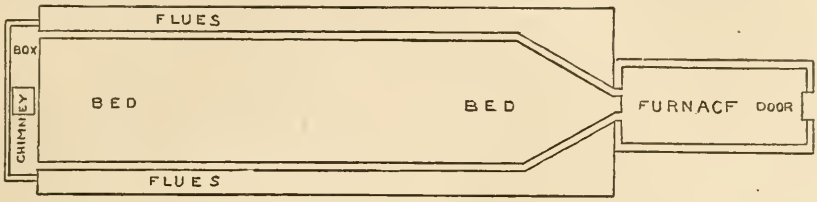

FIG. 20—FIRE HOT BED.

stations for testing it by plunging into their brims old fruit cans. By dropping the thermometer into these cans, I can learn the temperature at once. The top of the furnace can be used to good advantage by covering it with earth for raising plants or for heating a tank full of water, which is always useful about the garden. Be sure not to get the bed too hot.

St. Clair County, Ill. J. B. MATTHEWS, *in Farm and Home.*

ASPARAGUS.—II.

THE PLANTATION FOR HOME USE.—*Continued.*

I SHOULD have said, earlier, that in our climate the best time for planting is in spring when the garden is made.

A knife should never be employed in gathering the product. The stems should be broken off as far beneath the ground as they will snap readily. Then no injury will be done to other buds, and the whole stem may be used for cooking. The consumer who purchases asparagus at the stores, of which one half the stalk is white and woody, will appreciate the advice to use no knife in gathering the stems.

If the soil above the crowns is kept loose and friable, the shoots will be straight and tender.

In our climate, where we are likely to have sharp frosts during the asparagus season, the precautionary measure of having a little coarse litter along the row of asparagus, to be hastily drawn over the tender shoots when the temperature drops, is a wise one. Often a picking that would otherwise be entirely destroyed may be saved by this thoughtfulness.

The gathering of the product, after the bed is in full bearing, should be

complete. Do not allow the spindling, thready shoots to grow, but keep the plantation clean of sprouts until the season shall be over. The period of gathering depends entirely upon the character of the season. A safe rule to follow is, to close the asparagus season with the advent of early peas from your own garden.

It is not uncommon with me to have shoots, under ordinary field culture, over an inch in diameter, and by special attention this may be increased by one half. Mr. Burr, in his "Garden Vegetables," records the largest product in Britain, from one plant, to have been grown by a Mr. Grayson, aggregating one hundred stalks with a weight of 42 pounds.

Dr. Kennicott writes of a bed planted twenty-four years, with the plants four feet apart, cultivated with a horse and receiving annual dressings of manure, which furnished a family of twenty for two months in each year, at a less aggregate expense than that required to produce a dozen messes of green peas for the same table. He says that any ground which will grow a premium crop of corn will grow prize-taking asparagus.

In arranging for a long season of asparagus, amateurs have taken advantage of the fact that every inch of earth above the crown of the plants defers the date of picking two days. By having a few plants with crowns near the surface, the season may be advanced somewhat, and the picking from these plants should be discontinued correspondingly early.

THE MARKET PLANTATION.

It is best to grow one's own plants if practicable. If not, the best yearling plants should be secured, at a cost not exceeding $3 per thousand in quantity.

With a supply of fine yearling plants on hand, and a piece of ground fitted to grow seventy-five bushels of shelled corn per acre—land, if possible, of the character I described for the seed bed—it is not a very serious job to put down an acre of asparagus.

The record here given is a leaf from my own experience. My acre of ground was a deep, sandy loam, upon which a heavy dressing of manure had been placed the previous year and a crop of potatoes taken from it. The land was turned two furrows deep and thoroughly cultivated, harrowed and smoothed with a planer. Rows were marked out four feet apart, and with a plow trenchers opened to a depth of nine inches. The ground once in shape for planting, if a "drizzly" day happens along just right, one has the ideal conditions for putting in the plants. One man distributes the plants three feet apart in the row and a second man puts them in place, packing enough dirt firmly about the roots to cover them well. It requires 3,630 plants for the acre, and the two men will, if active, put them in place in half a day. The smoothing harrow drawn lengthwise of the plantation completes the job, by rattling a little loose earth into the furrows. In a few days the harrowing process can again be repeated, destroying the small weeds, and I even followed a third time before the plants were high enough to be injured.

Upon ground that is heavily manured with stable manure, weeds grow without provocation, and constant cultivation is required to ensure the continuous growth of the planted crop ; but the careful culture required to keep the weeds in abeyance is the ideal future of the crop.

At the end of the season the crowns of the asparagus plants are covered to a depth of six inches. The ground can be given thorough culture to a depth of three or four inches across the field, without injury to the plants.

My first acre was planted six years ago and has been plowed over each year just after burning off the tops in the autumn, and before the freezing of the ground. I give it a biennial dressing of stable manure, alternating with dressings of refuse salt from a hide packing establishment. The dressing of manure is at the rate of thirty-two tons per acre and the dressing of the salt product about eight tons per acre. The latter dressing is filled with animal products.

In the spring of each year the ground is thoroughly cultivated, harrowed, and finished with a planer, so that when we open the season of picking, the surface is as smooth as a floor.

My picking season usually lasts about six weeks and the average product is something over 400 dozen bunches. If I can have a trusty hand to do the gathering, I do not allow a knife to be taken into the field. The gatherer takes two rows at a time, breaking off the shoots just beneath the ground, at the lowest point where they will snap squarely off. In the growing season the field is gone over every day. Asparagus should be sold by weight, like lettuce and pieplant ; but, unfortunately, our retailers have not as yet taken this progressive step, and we have asparagus, not only of all grades of quality, in the market, but bunches of all lengths and sizes.

Since I have used rubber elastics instead of string or bark for tying, the process of bunching has been greatly abridged. Five dozen bunches can be put together in an hour by an expert hand and neatly squared at the ends.

Because the finest French asparagus goes into market blanched, with only the tips having any color, many people have absorbed the idea that our own product, if found on the market with half the length of the stems white, is the better for it. The truth is, the delicate product of the Paris market has been carefully blanched after an approved method, is crisp and tender its full length ; while a similar-looking product on our own market, grown in our ordinary field culture, is more than half waste because of the threads of woody fibre extending through the white part of the stems.

It is a custom among many of our gardeners, by the use of the knife to give their bunches the required length by cutting far beneath the surface, lowering the quality of their product and demoralizing the market. By following my method of breaking the stems there is no waste, and the quality of the lower part of the stems is as excellent as any part of them.

The doing away with the necessity of careful rules for cutting asparagus, and the forms of implements best fitted for the purpose ; the simplifying of the tying process, and the elimination of a large proportion of the expenses in preparing the field, are decidedly important steps in progressive asparagus culture.—C. W. Garfield, before *Michigan State Hort. Soc.*

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

A Great Cherry Tree.—The largest and most valuable cherry tree in the world is reported from California. Mr. R. Hector, of Placer County, is the owner, and he reports having received a gross return during the past five years of $1,800 ! The tree is now thirty-five years old and sixty feet high, and last year yielded 300 ten pound boxes, valued at $1.50 each !

TRANSPLANTING EVERGREENS.

We very frequently hear the question, "What is the best time for transplanting evergreens?" And the most common reply is, the month of June. The reason why May or June is a very favourable time for this work, is because the foliage of the trees, not being deciduous, is continually losing moisture by evaporation, and, therfore, to remove them at a time when the roots are dormant, will cause a great loss of moisture to the tree. For this reason, it is evidently unwise to remove evergreens in the fall or too early in the spring. Mr. W. C. Strong, in a paper read before the Massachusetts Horticultural Society on this subject, says that he has had wonderful success in removing evergreens in the month of August, the heat of summer then being over, and the growth of the tree having not yet ceased. He says that in 1871 he removed 40,000 Spruce, Arbor Vitæ, and pine trees, averaging from two to six feet in height, and placed them on a site about one half a mile distant, and, although the month of August of the subsequent fall was hot and dry, so that some wise-acres predicted total failure, the success was complete, there not being a loss of 5 per cent. He also stated that he had planted in the same month, some 6000 wild seedling pears from the Rocky mountains with a loss of only one-fifth.

Have any readers had any experience in transplanting evergreens in the month of August ?

Question Drawer.

KEEPING TALLY WITH BERRY PICKERS.

Sir,—Could you give me any information about a new system of keeping tally with strawberry pickers of which a note appeared somewhere in the Canadian Horticulturist, and I have looked a good deal and cannot find anything about it. Some man in the States was the inventor. I think the thing was something of the nature of a conductor's punch. If you could write the address on a postal card or give me any information so that I could get it, I would be very much obliged.

O. F. Burchard, *Kingscourt, Ont.*

Reply from essay by J. H. Hale, South Glastonbury, Conn.

In gathering and marketing the crop there should be one picker for each thirty or forty quarts of the daily product, and a superintendent to every fifteen or twenty pickers to assign them their rows and inspect their work from time to time to see that they keep to their rows and do not trample on the vines, pick the fruit clean and grade it according to the demands of the market to be supplied. Upon the thoroughness of this superintendent's work will depend a large measure of the success of the business. For keeping tally with the pickers, the best plan I know of is to give each a picking stand or rack of a size suitable to hold four, six, or eight quart baskets. This should be plainly stenciled with the number of the picker, all of whom should be numbered. On commencement of each day's work the picker is given this rack with its full quota of baskets, no more or less, and is required to return them, either full or empty, to the picking shed, when a daily account ticket is given. This ticket is of tough check paper, 3½ x 1½ inches; across the top is space for name and number of picker, day and date of the week; then five upright columns of eight figures, representing 1, 2, 3, 4, and 8 quarts, or 144 quarts in all—as much as even good pickers are likely to pick in one day. From this is punched, with a conductor's punch, number representing quarts of berries brought in, and given to the picker, who is then given a fresh lot of baskets, and returns to work and continues in this way till the day's work is done. Then the daily ticket is taken up and the number of quarts it represents as having been picked is then punched out of the weekly ticket, which is of the same tough check paper, size 5 ½ x 2⅜ inches. This ticket has space for name and number of picker, amount paid per quart, and date of the week on which it ends, and six columns of figures for a record of the berries picked each working day in the week, column for sum, total and cash paid on Saturday—date of ending. These tickets are carried by the pickers through the week, a new daily ticket given each morning and taken up at night; then on Saturday when we pay off, we take up the weekly tickets and file them away, and thus in a simple form have a complete record of all berries picked, and in case of loss of a weekly ticket by a picker before the end of the

week, we have the daily ones on hand from which to make a new one without loss to any one, thus there is no chance for a picker to lose pay, or for us to pay only just what is due.

Picking, except for local markets, should not begin till the dew is off in the morning, and not continue through the heat of the day, if pickers enough can be had to gather the crop without it—from four o'clock until dark is much the best time. The packing shed should be a cool airy place, convenient to the field, and here all the fruit should be taken as fast as gathered. A general inspection of the fruit should be given by the person in charge, and packed according to its grade, each variety by itself.

RASPBERRY SAW-FLY.

SIR,—My red raspberry bushes have suffered during the last two years from a sluggish green worm from ½ to ¾ of an inch in length. Could you give me a remedy through the HORTICULTURIST?

C. CURTIS, *Leamington, Ont.*

We have had no personal experience with any such worms upon the raspberry bushes; our chief difficulty in growing raspberries arising from the rust and from the ravages of the tree cricket. We would infer from what our subscriber says of it, that the insect referred to is a raspberry saw-fly, the larva of which is shown in the accompanying illustration in its natural size, with some segments magnified to show the arrangements of the spines upon the back and side. The perfect insect of this saw-fly is four-winged, and belongs to the order Hymenoptera. It appears in the latter part of May, just as the young leaves of the raspberry are coming out. The eggs, according to Mr. Saunders' "Insects injurious to fruits," are buried beneath the skin of the raspberry leaf near the ribs and veins, and are placed there by means of the saw-like apparatus with which the female is provided. When newly hatched, the larva is about 1½ of an inch long. Its body is at first nearly white, but afterwards becomes green, indeed, very much the color of the leaf upon which it feeds; and on this account it would not be very easily discovered were it not that it riddles out the leaves, by eating all the softer tissue between the veins. When fully grown it measures ¾ of an inch in length. Towards the end of June, the larva leaves the bush and forms its cocoon beneath the surface of the soil, where its transformation is affected, and from which place of concealment it issues forth in the early spring to continue its depredations.

FIG. 21.—RASPBERRY SAW-FLY.

These insects may be easily destroyed by sprinkling the bushes with hellebore and water, in the proportion of an ounce of the powder to a pailful of water. A mixture of Paris green and water would also be equally, if not more, effective ; but we would hesitate to advise the use of so rank a poison so near fruiting season.

SWAMP MUCK AS A FERTILIZER.

SIR,—Is there any fertilizing qualities in swamp muck, as I have quite a large quantity on part of my farm ? Would it be of any use as a mulch for fruit trees ?

RICHARD SENIOR, *Pepabun, Ont.*

There is no doubt that swamp muck is a valuable fertilizer, used as a mulch in the orchard and fruit garden. In the township of Pelham some farmers reported at a meeting of their Institute, that they had experimented with swamp muck upon quite a large scale, and found it greatly beneficial. One person had applied it freely around garden raspberries ; another had applied it to orchard trees, and each reported good results ; but, on the other hand, one person who had applied a large quantity of it to a small piece of garden ground, found that it was an injury rather than a benefit.

The explanation of this difference of results is no doubt due to the fact that "raw muck" has an "acidity," which is caused by the presence of sulphate of iron or some other matter which is injurious to plant growth until it has been mellowed by exposure to the air. Upon wet soil muck is injurious also, because it tends to increase the bogginess of the place.

But, generally speaking, muck is beneficial, for it renders clay more mellow, sand more retentive of moisture, and, as a fertilizer, it has some value as a source of nitrogen, and as a reservoir of ammonia.

GROWING TOMATOES.

SIR,—What is the best way to raise tomatoes so as to have them early ?

ROBERT STEED, *Sarnia, Ont.*

To raise early tomatoes, it is necessary that the plant be started early in a hot-bed, not later than the month of March. They need to have plenty of air, and the sashes should be gradually removed to harden them off, in order that they may be stocky before transplanting into the open ground. Some market gardeners first transplant from the hot-bed into a cold frame, where they may be protected from frost when necessary, and then transplant into the open ground when all danger of frost is over. Mr. Hallock, of Long Island, says that he has had the best success in growing early tomatoes on light soil, with but little manure. Some advise training the plants to strong stakes about four feet high, and keeping the side shoots well pruned, allowing all the strength to pass into the fruit situated on the main upright.

Mr. J. M. Stahl recommends trellising tomato vines, as shown in the accompanying illustration which appeared in *Popular Gardening*. He believes the expense is paid in the increase of crops and improved quality of fruit. The trellis is made by a row of posts with wires eight feet apart. Some use pieces of six inch boards in place of posts, and the wires are stapled to the edge of these.

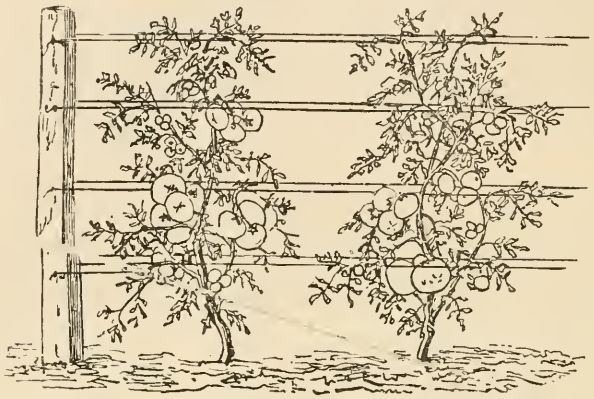

FIG. 22.—MR. STAHL'S PLAN OF TRELLISING TOMATOES.

SCRAPING APPLE TREES.

SIR,—Will you please inform me through the HORTICULTURIST, what is the proper time for scraping the bark off old apple trees?

JOHN A. SIDEY, *Norwich, Ont.*

It is customary in large orchards to do this work in the latter part of the winter or early spring with an old hoe, or any other convenient instrument, the object being to prepare an even surface for washing the tree with alkaline solutions, which are prescribed for the destruction of the bark lice, and also for giving the trunk a nice, clean, and healthy appearance.

SPREADING ASHES.

SIR,—When would be a suitable time for spreading ashes in the orchard, and do you think it would be injurious to spread ashes in the snow on strawberry plants?

J. A. S., *Norwich, Ont.*

Probably the best time for spreading unleached wood ashes on the apple orchard is in May or June, when the rains would carry down the potash to the growing rootlets, but we frequently apply them at other seasons of the year, as a matter of convenience. We would not advise our subscriber to spread ashes in the snow upon strawberry plants, for, if strong, they might possibly injure the crowns of the growing plants. It would be wiser to wait until spring and apply them between the rows, and not directly upon the plants themselves.

PLANTING GRAPE VINES.

Sir,—I am sorry to learn from your reply about grape cuttings from the Rhine, that there is so much duty. In planting the vines in our German style, I need to have over 2000 to the acre. Could you give me the names of any large grape growers from whom I might receive cuttings at pruning time? I have purchased some 400 four-year-old grape vines, and about the same number of berry plants, which I wish to transplant to my own land. When and how shall I do it? Jean Gruenbeck, *Cayuga.*

You might secure the grape wood for cuttings in quantity from any of our large grape growers at Winona or Grimsby.

It will be rather a difficult matter to succeed in transplanting four-year-old grape vines. Those of the age of one or two years are much more desirable, for vines of the age you mention will be much stunted in growth by their removal and may never fully recover, whereas, in moving vines of the age of one or two years, scarcely any of the roots are lost, and the vines will grow rapidly, soon surpassing the larger ones. The best time for planting is early spring, just as soon as the ground is in fit condition. The vines should be well cut back, and planted in large shallow holes, with the subsoil well pulverized. Fill in with fine earth, firming it well about the roots.

SUTTON BEAUTY *vs.* WAGENER.

Sir,—Which apple is better for the commercial orchard, Sutton Beauty or the Wagener? Are both early and abundant bearers, and firm enough to bear shipment to a distant market? H. O. Wellburn, *Duncan, B. C.*

The Wagener apple is an old and valuable variety, particularly for home use. Its excellent qualities make it very desirable as a dessert fruit. It certainly is early and a very abundant bearer; indeed, it is productive to a fault, but, in our experience, it is rather too soft for distant shipment, and very much subject to the sting of the apple curculio, which often renders it ill shaped and consequently second rate. In some localities, however, it is held in very high repute.

The Sutton Beauty we have not tested, but it is highly spoken of in Western New York as promising to be a very valuable market variety. Mr. O. B. Hadwen, of Massachusetts, in which State this apple originated, says of it; "It is proving a peer of the Hubbardston's Nonsuch, in some respects even better; has more character, flesh more tender and juicy, better color, and keeps well."

MOORE'S ARCTIC AND SAUNDERS' PLUMS.

Sir,—What are the merits and demerits of the Moore's Arctic and Saunders' plums? J. McAinsh, *Belton, Ont.*

The Moore's Arctic is considered valuable in some sections for its productiveness and hardiness. Dr. Hoskins, of Vermont, reports it quite hardy with him, and his climate is very severe; but Mr. Willard, of Geneva, N. Y., says the foliage drops badly with him, and the fruit fails to mature. There is no doubt that a great deal too much has been said in praise of this variety. It is not much to boast of in quality, and the statements that it is knot-proof and curculio-proof, are wholly false. The fruit is dark blue in color, and is produced in great clusters.

The Saunders' plum is a variety of great promise, which was introduced before the Fruit Growers' Association at their meeting at Barrie in 1884, and was named after Mr. Saunders, who was then the president. The tree is very productive, the fruit of good size, the color, bright yellow, and the flavor is melting, sweet and good. We cannot say whether it will be able to resist the black-knot any better than other varieties, or not.

JOHNSTON'S SWEET RASPBERRY.

SIR,—Two years ago, I set out 50 plants of the Johnston's Sweet Black Cap, on a rich clay loam. Will you kindly inform me through the HORTICULTURIST what you think of it. Is it hardy?

A. A. ROLPH,
Orono, Ont.

FIG. 23—JOHNSTON'S SWEET RASPBERRY.

We have never tested the Johnston's Sweet raspberry ourselves, but several of our leading fruit growers have tested it and speak very highly of it, particularly as regards its suitability for evaporating purposes. In quality is particularly sweet and delicious. Its season is about the same as that of the Tyler, and it is a little behind the Gregg in size. You will be the best one to report to us concerning its hardiness.

Open Letters.

NEW YORK STATE FRUIT GROWERS.

SIR,—The annual meeting of the Western New York Horticultural Society, held in Rochester, the 28th and 29th of June, was the most successful of any meeting ever held by them, in point of numbers and general interest. S. D. Willard, of Geneva, Vice-President, delivered the annual address, in which he paid a very feeling tribute to the memory of Patrick Barry, their late President, who died on the 23rd of June last. W. C. Barry, his son, was elected President, and Mr. Willard, Vice-President, for the ensuing year. Many interesting papers were read and discussed, among them one upon the fungi and disease which infect grapes, by David G. Fairchild, of the Agricultural Department at Washington, which was of particular interest. The paper was illustrated by diagrams, showing the methods of attack, and the effects of the different fungi upon the leaves and fruit. He stated that there were 50 species of fungi in the United States which annoy horticulturists. There were other papers of interest on plant diseases, bacteria, etc., some points of which we may refer to when we get them in their annual report. Prof. Saunders, of Ottawa, was present, and gave them an account of horticultural experiments and progress at the various Experimental Farms in the Dominion; and A. M. Smith, of St. Catharines, read a paper on the "Progress of Fruit Culture in Canada." There were also several other members of the Ontario Fruit Growers' Association present, all of whom received a cordial welcome. The question of "To Spray or not to Spray," was thoroughly discussed, and the general opinion seemed to be, that spraying with Paris Green, in moderate quantities, was the most effectual and best way of destroying insect pests, and that it would not materially affect the foliage or growth of the tree where judiciously applied. The Bordeaux mixture and the solution of ammonia and carbonate of copper were recommended for the various forms of mildew, or fungus, and rot. The first crop of the past year was reported almost a failure, with the exception of grapes, which had been an enormous crop. One county was reported which had produced 24,011 tons, averaging 2½ cents per lb., amounting to $1,080,000. In advocating what to plant in the future, there was a variety of opinion, but the majority wisely advised a variety of fruits, or the not putting "all of your eggs in one basket."

A. M. SMITH, *St. Catharines, Ont.*

BURLINGTON FRUIT GROWERS.

SIR,—The annual meeting of the Burlington Horticultural Association was held at Reuten's Hotel, recently. The President, George E. Fisher, in the chair. There was a large attendance of members and a pleasant and profitable evening was spent. The chief features of the meeting were the annual address of the President, which was an able review of the field of Horticulture for 1890, and an instructive paper by Dr. Zimmerman on the cultivation of Black Currants, in which he advocated the Black Naples as the most profitable, and a light clay loam as being best adapted for their production.

The following officers were elected for the current year:—President, George E. Fisher; Vice-President, Smith Freeman; Secretary-Treasurer, Arthur W. Peart. Directors:—Department of Apples, Edwin Peart; Grapes, Dr. Zimmerman; Pears and Plums, Peter McCullough, Jr.; Small Fruits, Joseph Lindsay; Vegetables, J. W. Bridgeman; Shipping, William Hopkins and Harry Williams. Executive Committee:—D. Henderson, Dr. Husband and Alexander Riach. Entertainment Committee:—President, Vice-President and Secretary-Treasurer. Auditors:—Charles Dynes and George N. Peer.

A. W. PEART, *Burlington.*

BLACK ALDER FOR THE CURRANT WORM.

SIR,—A farmer in this vicinity, Mr. J. McKeely, was told to put twigs of the Black Alder about his currant bushes to keep off the worms. He tried it last summer with complete success, having fine berries without the trouble of applying hellebore or other poison. He could only account for it by the strong smell of the alder keeping the insects off.

W. H. WYLIE, *Carleton Place, Ont.*

FOR THE CANADIAN HORTICULTURIST.

SNOW

BEAUTIFUL, frolicsome, whimsical snow,
I love you! but how can you bother me so;
Covering my windows, blocking my doors
And fain would you gambol all over my floors

In youth's merry days I hail'd you with glee,
Now, I'm sorry to say, you're a terror to me,
For when outward I go with muffler and staff
You blind my old eyes, caper round me and laugh

Dress my head in white feathers unbecoming my age,
When I shake them off, you fly round in a rage,
Oh! hoary old Winter it pains me to see
The longer I live you look colder on me.

I'll be safe from you Winter, when my soul goes to rest,
You'll not reach me there in the Home of the Blest;
I oft think of Hades and its prisoners below,
Who'd give thrones, if they could, for a covering of snow.

I'm forgetting my purpose in braving your blast,
For a look at my Maple, it may be my last,
My sheltering tree in the loved quiet nook,
Where God speaks to me in His Holy Book.

Ah, there stands my Maple in dazzling array,
Like the Arabian Princess "Proud light of day,"
I must come out to see her in the silver moon-light,
For the shades of my flowers will waltz round her to-night.

"Narcissus," with "Dahlia," "Sweet Lady in White,"
"Snow Cloud," "Lady Blanche," "Orient" and "Delight,"
All robed in the purest of gossamer gauze,
And those sombre old pines will murmur applause.

GRANDMA GOWAN

Our Markets.

MONTREAL.

Apples are in very scant supply, and little business is doing. No. 1 stock is worth $4.00 to $5.00, No. 2 is worth $2.00 to $3.50, while fancy stock brings fancy prices. *Dried apples* are worth 8c. to 8¼c. per lb., and *evaporated apples* are firm at 12½c. to 13½c. per lb.

This has been a good year for speculators, and some buyers have made handsome profits out of apples. Some Montreal apple merchants have cleared sums on the season's business ranging all the way from $5,000 to $25,000, according to the Trade Bulletin; and have invested in fine residences in fine quarters. The average profits made seems to have been upwards of $1.00 per bbl. net.

LIVERPOOL.

Reports show a decrease in receipts, and still higher prices. Baldwins, Greenings and Spys run from $7.00 to $8.00 per barrel; while Kings and Russets reach $9.00.

Our Book Table.

CATALOGUES.

NURSERY STOCK AND SPRAYING PUMPS. Mr. Wm. Stahl, grower of high grade fruit trees, plants and vines, and manufacturer of the Excelsior Spraying Pumps, Quincy, Ill. A catalogue of considerable interest, owing to the information given in it in regard to spraying for fungus diseases and insects. Free on application.

SEEDS. D. M. Ferry & Co., Windsor, Ont., Seed Annual, 1891, 92 pages, well illustrated.

TREES, VINES AND PLANTS. A. G. Hull, Central Nursery, St. Catharines, 32 pages. J. H. Wismer, Northern grown trees, Port Elgin, Ont. E. D. Smith, Helderleigh Farms Nursery, Winona, Ont.

ROSES. Ellwanger & Barry, Rochester, N. Y.

BOOKS.

OHIO STATE HORTICULTURAL SOCIETY; Transactions for 1890. 24th Annual Session held at Des Moines, Iowa, January 21st, 22nd and 23rd, 1890, Geo. Van Houten, Lenox, Iowa, Secretary.

RABY Castle Currants, Grape Vines, Norway Spruce, Scotch Pine, Hardy Catelpa and Nursury Stock generally.

E. MORDEN,

Mch. 3t Niagara Falls South, Ont.

Plants of Large Strawberries. Best of New, best of Old.

Gt. Pacific, Edgar Queen, Lady Rusk, Shaw, Louise, Miami, Pearl, Parker Earle, Hatfield, Hinton, Beder Wood, Enhance. I would like all my customers to try the Enhance, and Michels Early.

Price list free, send for it. Address

Mch. 2t. **JOHN LITTLE, Granton.**

GIVEN AWAY TO EVERY Farmer and Flower Friend who sends in his full address, more pkts., fine new beautiful Flowers or Vegetable Seeds and Catalogue free. Send 2 cents for Postage. 10 pkts. pure reliable early Vegetable Seeds, 20 cents; 10 pkts. High-grade Flower Seeds, 10 cents; 10 rare Flower Bulbs, 20 cents; 10 Blackberry Plants best kinds, 60 cents; Strawberries, Parker Earle new, (See November number CANADIAN HORTICULTURIST), 10 each for 40 cents. All postpaid. Mch. 1t

Really the Cheapest Seed House in America.

Box 582. C. M. HILDESHEIM, Baltimore, Md.

Wanted, spare copies of January number. Two numbers of 1890 given for each copy sent in to the Editor.

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COMMISSION SALESMEN,

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REFERENCE—The National Bank of Scotland, High St., Edinburgh.

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FRUIT AND GENERAL

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Nov. 12t. Toronto, Canada.

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Editorial work upon this revision has been in progress for over **10 Years.**

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Jan. 3t.

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Apricot, Plum, and Pear Trees,

Grown at Niagara-on-the-Lake, Ont. Price list and description on application.

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- - BEE-KEEPING - -

IS THE NATURAL ADJUNCT OF

FRUIT GROWING.

Those interested in the one are usually interested in the other. As the *Horticulturist* instructs fruit-growers, so the

CANADIAN BEE JOURNAL

instructs as to the best means of making the keeping of Bees a profitable investment. It is published semi-monthly, at the low price of 75 cents per annum, making a volume of 576 pages, filled with articles from *practical* men.

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"It has always been impartial and has shown no fear or favor. Articles are used on their merits and all writers and readers have an equal chance * * * As it has been managed I would have given up all other bee journals before I would that."

SPECIAL OFFER. To increase their list the publishers make a special offer to the readers of the *Horticulturist*. They will receive subscriptions at **Fifty cents** each for a trial year, but this magazine must be mentioned when the subscription is sent in. Send subscriptions to

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Largest Stock in Canada of Strictly Graded Canadian Grown

GRAPE VINES

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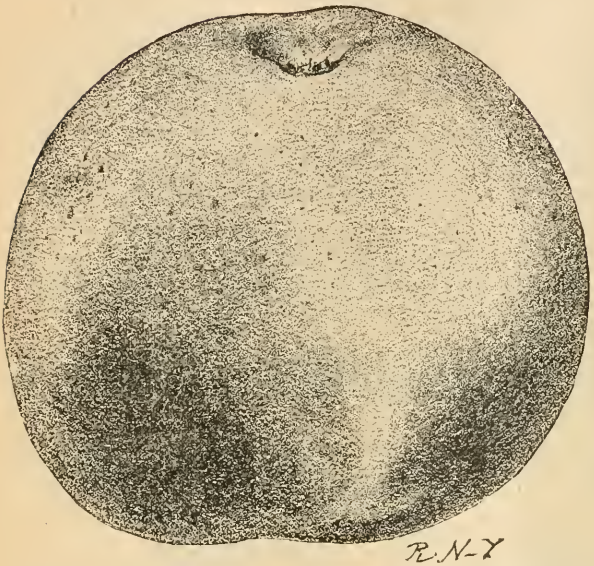

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Established over 50 Years. (*Mention this paper.*)
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Trees and plants to distant points by mail and express a specialty.

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For 1891 will be mailed FREE to all applicants, and to last season's customers. It is better than ever.
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FRUIT TREES, GRAPE VINES,
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At WINONA NURSERY.

A good general assortment of the above, grown on the best soil, which produces good, healthy, thrifty stock, with fine roots.

The wise, wide-awake fruit grower always places his orders early, and thereby not only makes himself sure, but also saves himself much of the hurry and worry of spring planting. We guarantee all stock as represented and true to name, and try to do unto others as we would have them do unto us. Orders solicited. Price list free on application. Address

SMITH & VANDUZER
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We have a few hundred very fine **Natural Peach Trees** to offer at $5 per 100. Budded varieties at $10 per 100. Feb. 2t.

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Paying $1 to the Secretary are entitled to receive:

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(2) **The Canadian Horticulturist,** a monthly journal especially adapted to Canadian fruit growers. The only journal in the interests of their own industry. Most papers on fruit growing are published by nurserymen in the interests of nurserymen.

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I. **Russian Apple.** Golden White.

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III. **The Williams Strawberry.** A new Canadian variety which has created a great sensation about Brantford. It is a cross between Crescent and Sharpless and possesses the merits of each.

IV. **An Unbound Copy of the Canadian Horticulturist,** vol. i., ii., iii. or iv. These have no colored plates, but contain much valuable information.

V. **Triomphe de Vienne Pear.** (Stock Exhausted.)

VI. **Two Cannas, different colors.** These form one of the handsomest plants for a bed on the lawn, beautiful both in foliage and in flower.

VII. **General Jacquemot Rose.** This is one of the most satisfactory red roses for the lawn, a free bloomer and vigorous grower.

VIII. **Two Dahlias.**

N.B.—These should be selected at once, as we are making up the lists, and they will be sent early in Spring.

SPECIAL ADVANTAGES TO AGENTS.

All Agents may retain 20 cents for each new subscriber, or two renewals; but in place of this commission they may have, for each, one choice from the list of plants above. In case there are five or more in one Club, Agents may choose from the following additional list, which will be sent to one address, by express, prepaid.

IX. **Princess Louise Apple Tree,** 5 to 6 feet high.

X. **Yellow Transparent Apple Tree,** 5 to 6 feet high.

XI. **Catalpa Speciosa Tree,** 5 to 6 feet high.

XII. **Deutzia Crenata,** 3 feet high, a fine ornamental shrub.

XIII. **Niagara Grape Vine,** 2 years, first class. The most productive of White Grapes.

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Outfits for canvassing, including sample copies, posters, envelopes, etc., will be sent **FREE** on application. Address

L. WOOLVERTON,

Secretary of the Ontario Fruit Growers' Association,

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DUDLEY & BURNS, PRINTERS, TORONTO.

The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

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PORT ELGIN NURSERY.

All kinds of Nursery Stock CHEAP! CHEAP! Catalogue and Magnificent Dahlia for two 3c. stamps to pay postage and packing. CATALOGUE ALONE, FREE! It tells the whole story.

Feb. 3t. **J. H. WISMER, Port Elgin, Ont.**

1891.

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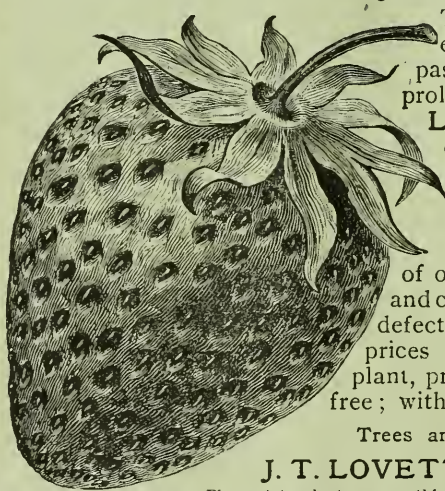
Home Grown, Honest, Reliable.

I offer you my Vegetable and Flower Seed Catalogue for 1891 **FREE.** Note the immense variety of seed it contains, and that all the best novelties are there. Not much mere show about it (you don't plant pictures) but fine engravings from photographs of scores of the choice vegetables I have introduced. Would it not be well to get the seed of these from first hands? To be the oldest firm in the United States making mail and express business a specialty proves **reliability.** Honest and honorable dealing is the only foundation this can rest on. My Catalogue is **FREE** as usual. A matter on second page of cover will interest my customers. **J. J. H. GREGORY & SON, Marblehead, Mass.**

Jan. 4t.

Lovett's Early Strawberry.



The earliest large, the largest early Strawberry. Unsurpassed in quality; the most prolific of all. Fully described in **Lovett's Guide to Horticulture.** Also all good old and choice new varieties of Small and Orchard Fruit, Nut and Ornamental Trees and Plants, etc. It is a book of over 80 pages, finely printed and copiously illustrated. It states defects as well as merits, gives prices and tells how to purchase, plant, prune and cultivate. Mailed free; with colored plates 10c.

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New Ignotum Tomato, earliest and best yet, and Grand Rapids Lettuce, best for greenhouse or forcing.

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DEER PARK CONSERVATORIES,
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"THE WILLIAMS' STRAWBERRY."

A few thousand plants of that splendid berry for sale at $1 per hundred. For description see August number of CANADIAN HORTICULTURIST, for 1890.

April 2t. **DAVID GREIG, Cainsville, Ont.**

850,000 GRAPE VINES

100 Varieties. Also **Small Fruits, Trees, &c.** Best rooted stock. Genuine, cheap. 2 sample vines mailed for 14c. Descriptive price list free. **LEWIS ROESCH, Fredonia, N.Y.**

Feb. 3t.

THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 4.

QUINCE GROWING.

GENERALLY speaking, the quince is very little grown in Canada. A few neglected specimens of stunted growth are found in fence corners and door yards, but there are very few trees receiving the proper cultivation, either for home use or for market. In the United States there are many large plantations from which much fruit comes into our Toronto and Montreal markets for distribution, but in our smaller towns the quince is almost an unknown fruit, and consequently nearly unsalable. People need to be educated to the use of any fruit, and unless enough is grown to give them a taste, how can this education be accomplished? A few years ago our city markets were very scantily supplied with any of the small fruits, and consequently the tables of our citizens must have been utterly bare of these luxuries, but now, what a change! Every day fresh fruit arrives in car loads from every direction to find crowds of eager buyers. So with the quince; as soon as the townswomen learn the value of the quince for jellies, preserves, flavorings or sauce, there will be a largely increased demand, and consequently room for a large increase of quince production in Ontario.

To grow quinces successfully, the first point of importance is to select a deep rich soil of a rather heavy character, and well drained. This should be well worked up and put into good condition, just as one would prepare for a corn crop. The trees should be planted about ten feet apart each way, or in rows 12 feet apart, and the trees eight feet apart in the rows. The after cultiva-

tion should be constant. It is altogether a mistaken notion that quince trees, or any other trees, will thrive under neglect. True, heavy mulching will to a large extent make up for cultivation, but material for this purpose is not always at hand, and, as a rule, the best plan is to use the plow and cultivator frequently among the trees, thus exposing the land to the action of the air, without which the elements of fertility will long remain locked up from their roots. Another important point is liberal fertilizing. The quince tree is a great feeder, and the soil of the quince orchard should be manured heavily, favoring perhaps the ground near the trees.

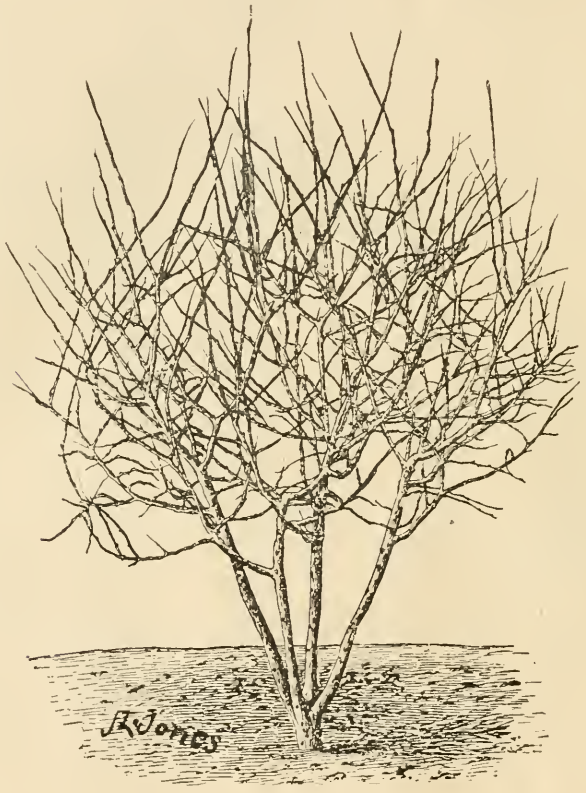


FIG. 24.—QUINCE TREE BEFORE PRUNING.

Some writers recommend, in addition, an annual application of salt, say about a quart scattered broadcast under each tree. Those who have not fertilized their quince trees liberally have no idea of the fruit which can be got under proper treatment. One might even doubt the identity of the same variety when grown under circumstances of neglect, or of careful cultivation. The

orchard should be cultivated and manured until the tree produces quinces so large that about sixty of them would fill a bushel basket. Such quinces would always command a ready sale in our markets, while the little scrubs we often see will go begging anywhere.

Again, the pruning of the quince is shamefully neglected by most people and a more unsightly mass of suckers and matted branches can scarcely be imagined than the quince tree will produce when neglected. The whole work, if done annually, can be performed with a good pruning knife. The tree form is undoubtedly the best, having branches quite near the ground. Every spring the

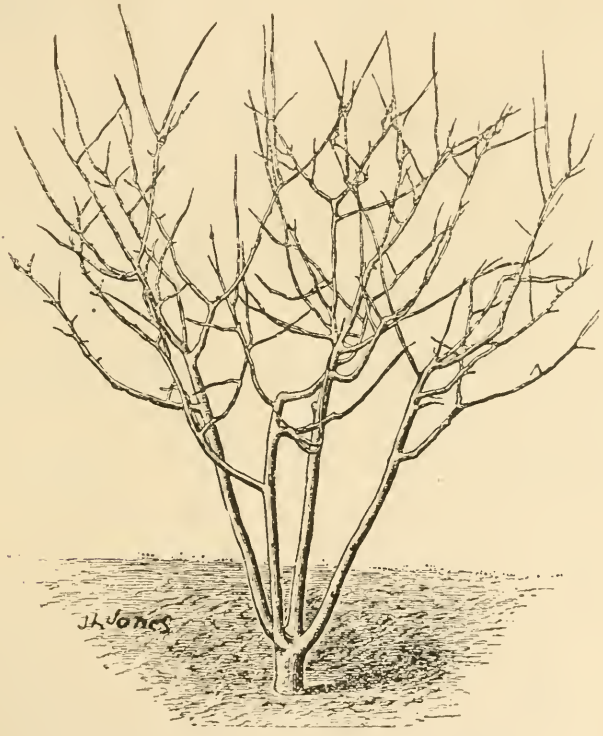


Fig. 25.—Quince Tree After Pruning.

new wood should be cut back, leaving only some four or five buds, and the old wood should be thinned out as seems necessary. We give our readers two illustrations from *Orchard and Garden;* Fig. 24 being a sample of a quince tree before pruning, and Fig. 25, the same after pruning. It will be evident to any one that a tree left without this treatment would bear more fruit than could be brought to perfection, and much strength would also be lost in supporting useless wood.

Among the difficulties to be contended with in growing the quince we may mention the borer, which must be carefully guarded against. If the larva has entered the wood, he must be dug out with a knife, but by washing the trees with strong suds of soft soap during the months of June, July and August, there will be no trouble from this insect. The leaf blight is also very troublesome, but of late our scientists have been able to follow out its life history and to recommend spraying with the Bordeaux mixture, or with ammoniacal carbonate of copper, as effective remedies.

VARIETIES.

ORANGE.—Large, roundish ; bright golden yellow ; very productive and of excellent flavor. An old and very popular variety, ripening in Southern Ontario toward the end of September.

ANGERS.—A little later than the Orange in ripening, fruit a little more tart and less showy, but a little more hardy, and a longer keeper. The tree is a strong grower, and much used as stock for dwarfing the pear.

REA'S MAMMOTH.—Seedling of the Orange, similar in appearance and in quality, but a little larger, somewhat more hardy. Some consider this the very best of all quinces.

CHAMPION.—This variety, which is the subject of our colored plate, is a new variety originating in Connecticut. It is very productive, a constant bearer, and the fruit averages larger than the Orange. With us at Grimsby, it ripens a fine load of large clean-looking fruit, less marred with cracks and scabs than the Orange or Angers, but unfortunately a little late in ripening for us to recommend for any section north of us. Some say that the tree itself is less hardy than the Orange.

MEECH'S PROLIFIC AND FULLER are two new varieties which are recommended as having special merit, and will receive notice under our department of New or Little Known Fruits.

THE RABY CASTLE CURRANT.

SOMETIMES the assertion is made, that the Raby Castle is simply the Victoria. To set this matter at rest, I will describe the Raby Castle and state that I have frequently met with those who have known this variety in England.

When the buds of the Raby Castle become enlarged in May they are whitish ; later on the leaves much resemble those of the Black Currant. They are very strong growers and incline naturally to take the tree shape. This description will help anyone to identify the variety, but will not settle the matter with those who have the Raby Castle under the name of Victoria. Where this substitution has been made, it will be to the advantage of the grower, but will tend to confuse names.

Compared with the Red Dutch the Raby Castle is a stronger grower, and gives more and better fruit, though not much larger.

Niagara Falls South, Ont. E. MORDEN.

REMEDIES FOR APPLE SCAB.

Sir,—I noticed, in the April, June and July numbers of the Horticulturist for 1890, several different recipes for preparing fungicides. Would you please tell us which of the four is the most effective and the cheapest ; as we must try to prevent the scab in the apple and pear ?

Walter Hick, *Goderich, Ont.*

THE terrible havoc made upon our fruit crops by the fungus diseases and the awful rate of their increase, should stir up all fruit growers to activity. At one time we feared an over supply of fruit, but now the question is rather how to get a crop at all, at least of first quality. It has been calculated by careful investigators in the United States that the loss to farmers in that country during the past year, arising from the prevalence of such fungi as rot, scab and the mildew, has not been less than $400,000,000. We have no estimate of the injury in Canada ; but who of us, that has had any experience at all, will doubt that we have suffered in like proportion. The apple scab is a minute, parasitic plant which attacks the twigs, buds, leaves (See Figs. 26 and 27), and fruit of the apple tree, but is more commonly noticeable upon the fruit itself, and its appearance is only too familiar to all our readers. There is little doubt that the loss of our apple crop in southern Ontario last year, is to be

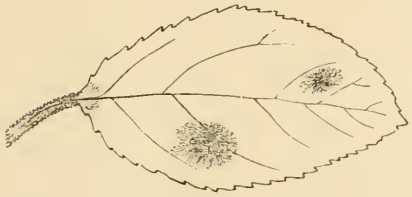


Fig. 26.—Leaf affected with Apple Scab.

Fig. 27.—Section of leaf showing scab fungus growing through epidermis.

credited to the unusual prevalence of the apple scab, brought about in part by the cool, moist weather, which was so favorable to its development. As considerable space has been given in our journal in the past to the description of this fungus and its mode of growth, it is unnecessary to repeat it here. The great question is that raised by our correspondent about the most suitable remedy to employ in its destruction.

The chief difficulty thus far has been the fact that any fungicide, strong enough to kill the apple scab, is also destructive to the foliage itself. But it is now found that the scab fungus lives through the winter on the young shoots and upon the scales of the buds ; if, then, we can prevent the germination of the young spores in early spring before the foliage is developed, and when consequently strong solutions can be applied to the tree, we have a practical method of combatting this disease.

Prof. Scribner, whose researches in vegetable pathology have rendered his name famous, has found that sulphate of copper is one of the most effective fungicides that can be used. Experience has proved that this substance, modified as in the Bordeaux mixture and sprayed upon the grape leaves, will prevent the germination of the spores of the Downy mildew which may fall upon them Now there are several formulas recommended for experiment as remedies for the apple scab, but they have scarcely been sufficiently tested yet for us to answer our correspondent, giving him actually the cheapest and the most effective one ; this much seems to be fully established, that sulphate of copper is likely to prove equally effective in this case as it has been with the Downy mildew of the grape. It is with the hope that our prominent fruit growers will experiment with this substance faithfully in the spring, that we write at such length in reply to our correspondent. The following is the course of treatment recommended :

First, in the early spring, before the leaves appear, spray with a simple solution of sulphate of copper, or Eau Celeste, made by dissolving one pound of sulphate of copper in twenty-five gallons of water. This is for destroying any germs of the scab that may be lodged in the crevices of the bark.

Second, as soon as the petals have fallen, and it would be no longer safe to apply this strong solution, ammoniacal carbonate of copper may be applied. This is prepared as follows : Three ounces of precipitated carbonate of copper are dissolved in one quart of ammonia, strength 22° Baume. Dilute with 32 gallons of water. It will be observed that this is stronger than that recommended on page 206, vol. 13. It was hoped by Professor Taft that the carbonate of copper might be applied in powder, apart from the ammonia, with equal effect, and if so it could be stirred up in the Paris green water used for destroying the codling moth, but it is doubtful whether it will be so effective in this form. Certainly it would be very desirable to find out some formula that could be safely and effectively employed in conjunction with the Paris green, for the sake of economy in labor. We have it on good authority that the Bordeaux mixture may be applied in this way, and, therefore, we repeat the formula for its preparation : Sulphate of copper, six lbs., dissolved in 4 gallons of hot water ; lime, 4 lbs., dissolved in 4 gallons of cold water. Mix the two solutions as above, and, when desired for use, dilute to 22 gallons with cold water.

Third, if the weather should be moist and cool, and, consequently, favorable to the development of the scab fungus, it would be well to repeat the application of the ammoniacal carbonate of copper once or twice during the summer months. There is an objection to the use of the Bordeaux mixture late in the season, from the fact that it adheres to the fruit in such a manner as to hinder its sale, unless washed.

The cost of the four applications need not be over 10 cents per tree. The copper carbonate, in lots of 20 lbs., can be purchased from Messrs. Eimer & Amend, 205, 11 Third Ave., New York, for 50 cents a pound ; or it may be ordered through the local druggist at a slight advance on this cost. As this

substance is not usually kept in stock, it will be necessary to order it some time before it is needed.

In the opinion of Mr. E. S. Goff, of the University of Wisconsin, there is nothing better than the copper carbonate as a remedy for the scab, and, while he recommended ammoniacal solutions as the most effective, he advises those who are spraying with Paris green for the codling moth, to add also precipitated copper carbonate powder to the water, in the proportion of one ounce to twenty-five gallons.

Prof Taft, of Michigan, has been making extended experiments for the destruction of the apple scab. He thinks that modified Eau Celeste gives the best result, and that in his experiments he has saved from 50 to 75 per cent. of fruit that otherwise would have been scabby. The formula is as follows: Two pounds sulphate of copper, 2½ pounds carbonate of soda, and 1½ pints of ammonia (22° Baume). Dilute with 32 gallons of water.

FURTHER ADVICE ON TREATING APPLE SCAB.

Since writing the preceding article we have received the following additional advice on the best treatment of scab.

From E. S. Goff, Horticulturist at the University of Wisconsin Experimental Station.

SIR,—It has often been recommended to use three ounces of carbonate of copper to one quart of ammonia, but I have been unable to dissolve more than one and one-quarter ounces in one quart. If more is added, it settles to the bottom without dissolving. I now recommend one and one-quarter ounces of precipitated carbonate of copper to one quart of ammonia.

So far as I can see from our work of the past season, double the amount of carbonate of copper suspended in water is as efficient as that dissolved in ammonia. Owing to the very abundant and frequent rains during June, our work did not show as well the past season as in the season of 1889, but the applications were beneficial.

I cannot say at present, whether it is better to use the carbonate of copper suspended in water, or to dissolve it in ammonia. Another season's trial, I hope, will answer this question definitely.

From L. R. Taft, M.S., Professor of Horticulture at Michigan Agricultural College.

SIR,—In a favorable season I think you would have best results from perhaps three applications of modified Eau Celeste, made by dissolving two pounds copper sulphate in one vessel, two pounds carbonate of soda in another, pouring together and adding one pint of 20° ammonia, and thirty-two gallons of water. If it comes off cold and wet just before the blossoms open, I should spray them. Never spray while in blossom, on account of the bees.

You will find this an insecticide, but I am not sure whether it can be relied on to destroy the codling moth. Never add any arsenite to the fungicide as the ammonia will dissolve it and the foliage will be injured.

TREATMENT OF GRAPE MILDEWS.

THERE are two kinds of mildew which interfere with the prosperity of the vineyardist, and, while we in Ontario have had comparative immunity from the Downy mildew which is the most destructive form, yet the Powdery mildew, which is only too familiar to us, is rapidly gaining ground in our vineyards. While it does not come within the scope of a horticultural journal like this to enter into any scientific description of these fungi, it is yet necessary for us to be able to distinguish the one from the other.

The Downy mildew (Peronospora viticola), which in the south is very common and destructive, appears to be slowly invading our territory. When it affects the berry, it is spoken of as the Grey Rot, and at a later stage as the Brown Rot; as seen upon the leaves in the summer season, this mildew has the appearance of a shining white powder, on the under side, and by the aid of the microscope this is seen to consist of summer spores growing in thousands upon little branches which spring up through the breathing spores, or stomata, of the leaves, (Fig. 28). There are also parts which correspond to roots, and which draw nutriment for this fungus from the cells of the leaf, and sooner or later cause it to die and fall to the ground. The little summer spores are produced in countless numbers, and may be carried from one affected leaf over the whole vineyard.

Late in the fall the winter spores are formed, which live inside the leaf through the winter, and in the spring are just in the right condition to propagate the disease. The dry leaves are blown about in every direction, and, when disintegrated by the spring rains, set free hosts of spores to settle upon the young foliage. These quickly send down minute suckers to absorb the nutriment which was intended for the development of the leaf itself.

The Powdery mildew (Uncinula spiralis) which is so common a pest in our Canadian vineyards, differs from the one just described, first, in appearing upon the upper side of the leaves and berries as a dirty white coating, from which it takes its name; and, second, that it is wholly external and does not penetrate to the interior of the leaf or fruit; and, third, the winter spores are not within the leaf but upon its surface, where they may be easily discerned when

FIG. 28.—SPORE-PRODUCING BRANCHES OF DOWNY MILDEW.

mature. In other respects its life history is similar to that of the Downy mildew.

Treatment—From the brief account of the life history of these fungi, which have been given above, it will be evident that the best means of preventing their growth is, first, by carefully destroying the foliage of the affected vineyard in the autumn; and, second, by an application in the spring to the young foliage of such mixtures as will prevent the germination of the spores, when they alight upon it. With reference to the best copper mixtures for spraying the vineyard, Mr. B. T. Galloway, Chief of the Division of Vegetable Pathology, Washington, D. C., writes us as follows:

"In reply to your recent inquiry as to the best method of combatting the powdery mildew of the grape, I have to say that the ammoniacal solution has been found fully as effective against this disease as any remedy now used. I would not advise the use of the Bordeaux mixture for this trouble, as it is certainly no better than the ammoniacal solution, while, on the other hand, it is considerably more expensive.

In case the ammoniacal solution is used, I would suggest that it be made by dissolving 5 ounces of copper carbonate in 1½ pints of ammonia having the strength of 26°. When dissolved pour into a 50 gallon barrel, and fill the latter with water. The solution made in this way will cost about 50 cents per barrel."

We would advise our readers who intend experimenting during the coming spring with these mixtures, to make no delay in giving their order to the local druggist, who, as a rule, does not keep the copper carbonate in stock. He will, however, be able to procure it so as to sell it at about 60 cents a pound. Three or four applications will probably be sufficient for the vineyards of Ontario, because in these cooler latitudes, the fungus does not grow so luxuriantly as it does farther south. It is very important that the vines should be thoroughly sprayed so that every part liable to mildew shall be well covered with the mixture. An early spraying is very important, and the first application, according to Mr. Fairchild, of Washington, D. C., should be made at least one week or ten days before the young buds have fully burst their winter coats, just as the red tips of the young leaves are beginning to show. The second spraying may be postponed until the young leaves are from one to one and a half inches in diameter, but not later. The third spraying should be given when the flowers have fully opened, and this will not injure the blooms, for these have been fertilized before the caps have dropped off; and the fourth application may be made when the fruit is about the size of garden peas.

If this spraying is carefully attended to, we have the best authority for saying that our readers may count upon almost perfect immunity from the mildews, the rots, and also from several other fungi which affect the grape.

Of course, in order to do this work effectively, spraying machines of some kind will be necessary. Many growers, who have large orchards, have already

FIG. 29.—THE JAPY SPRAYER.

provided themselves with a large spraying pump, attached to a 50 gallon barrel, in order to wage war against the codling moth. But we are constantly asked for a convenient kind of sprayer for the garden and small sized vineyard. Such sprayers have been long in use in France, and one in particular, called the Japy sprayer, is of special merit, (Fig. 29). We are glad to be able to state that a similar one has been designed by Mr. B. T. Galloway; it is now being manufactured in the United States, and is offered for sale at $14.00 retail. The expense of the pump and of copper mixtures are quite an item, it is true, but the good results are so certain and important that the investment is a perfectly safe one.

RAISING PEACH TREES.

SIR,—I intend to set out about five acres of peaches. The soil is a gravelly sand, and is situated on the western edge of the mountain, half a mile north of Fenwick. Would you please give me some advice with regard to the raising of peach trees from the pits, and also, how the young trees should be budded; the best varieties and the distance apart they should be planted in the orchard?

WM. CLAPTON, *Fenwick, Ont.*

OUR friends in the neighborhood of Fonthill, near which place Fenwick is situated, had much encouragement last year in peach growing, for their trees yielded an abundant crop and the price was extravagantly high. Wherever peaches will succeed in Ontario, there is no more profitable fruit to grow, for very frequently a grower has received for his peach crop as much money as would, under ordinary circumstances, be considered a fair value for the land upon which it was produced.

Our subscriber is wise in undertaking to grow his own trees, for any one, who has a little skill in this way, may save himself quite an expense in the purchase of the trees. The method, usually adopted by nurserymen, is somewhat as follows: The peach pits are thoroughly mixed with sandy soil or sawdust, either in a box or in a garden bed, and left in this way exposed to the winter's frost, which renders them easily cracked in the spring. A choice piece of

land having been thoroughly prepared, as for corn, is marked out in rows, say three feet apart, and the kernels planted in the drills about an inch deep and three or four inches apart in the rows. If the season is favorable, the seedlings will mostly be ready for budding in the following August or September. The sticks of the bud are cut from the young wood of such varieties as it is desired to propagate, and, the leaves being removed with the exception of the petiole which serves as a handle, the buds are cut out as required and in the manner shown in the accompanying illustration. With a knife adapted for the purpose, a "T" shaped incision is made in the bark of the young tree near the ground, usually on the north side, and this enables the operator to lift the bark and neatly insert the bud in its place, when it is immediately tied, either with some soft cord, or, what is better, with strips of the inner bark of the basswood tree. All these operations are so plainly shown in our illustrations, that farther details are unnecessary. The following spring the seedling trees are cut off just above the inserted bud, and the whole strength of the tree directed into it; as a result it will grow so rapidly, that it will be large enough for orchard planting by another spring.

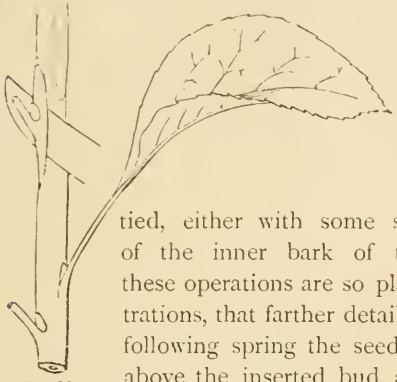


Fig. 30. Cutting of bud.

Fig. 31. Manner of inserting a bud.

The best soil for the peach orchard is a sandy loam, well drained, and it should be well prepared, both by thorough cultivation, and a good dressing of wood ashes before planting. Where the Yellows does not prevail, the peach trees may be planted twenty feet apart each way, but, where the trees are short lived on account of this disease, we are planting them much closer.

On page 6 of volume 13 will be found a good list of peaches for shipping purposes.

Grape Vines on Heavy Soils.—The old idea that grapes thrive best on light land is mainly due to the fact that such soils are naturally dry. While a heavy clay is not best for the grape, it is no insuperable obstacle to success in vineyarding, provided it is thoroughly underdrained. In fact, grape growing is possible under a wider range of conditions and soil than is the case with any other crop. The one thing that grape roots cannot abide is stagnant water. No matter if this dries out in mid-summer it is then past the power of the vine to regain lost time. Land thoroughly drained to the depth of three feet warms more quickly in the spring and makes a difference in temperature of five to ten degrees or more at the time when the vine most needs warmth.

NOTES ON THE STRAWBERRY.

GENERAL OBSERVATIONS ON STRAWBERRIES.

IF varieties of strawberries are separated into two classes, viz.: (1) those that continue a long time in bearing, and (2) those that continue a short season—it will be found that the most prolific fall into the first-class, and the least productive into the second. It is also true, in general, that the greater the number of pickings during the season, the greater the total product. It might seem that the aggregate crop would depend as much or more upon the quantity of ripe fruit at each picking, as upon the number of pickings. It would also seem that the varieties which ripen slowly would be more affected by dry weather, or other unfavorable influences, than those that yield their crop in a short time; but such does not appear to be the fact. A short strawberry season means a short crop, whether varieties are considered individually or in the aggregate, and the converse is equally true.

A variety that gives three pickings during the season, will yield about half as large a crop as one that gives six. This generalization refers particularly to varieties that have well fixed characteristics. Some of these variable varieties may, in many cases, appear to be exceptions. There are also varieties that have neither a long nor a short season, hence can hardly be classified. All things considered, the long season varieties are more sure and profitable than those that continue but a short time in bearing, and yield comparatively few pickings.

EARLY AND LATE, COMPARED WITH MEDIUM VARIETIES.

Nearly all of the very early varieties continue but a short time in bearing, give comparatively few pickings, and produce light crops. The same is true, in a more marked degree, of the extremely late ripening sorts. The effect is the same as if the last pickings of the early varieties, and the first pickings of the late, had been destroyed; both early and late hold out but a short time. In general, the medium, or second early sorts, are these having a long season. Although not all that are found in this class are highly fruitful, it is true that the most fruitful come within it.

PERFECT AND IMPERFECT FLOWERED VARIETIES COMPARED.

One thing is clear, *i. e.*, that the most prolific varieties are found among these having imperfect flowers. Nearly all this class are very prolific. Among those having perfect flowers, none are found that are extremely prolific; the Wilson and Capt. Jack being possible exceptions under favorable conditions.

Taking averages for the two classes, we find that the varieties having imperfect flowers, stand thirty-eight per cent. higher than those having perfect

flowers. If we take four from each class of the most prolific, the imperfect flowered sorts stand thirty per cent. higher than those having perfect flowers.

There can be no doubt that the production of pollen is an exhaustive process, hence the varieties having perfect flowers are at a disadvantage. No doubt some of the perfect flowered sorts are very nearly equal to any in fruitfulness, and, under certain circumstances, may fully equal, but the chances are against them when unfavorable conditions occur. Given two varieties of equal vigor and productiveness, one having perfect, the other imperfect flowers, the extra work of pollen bearing on one, will so weaken the plants as to render them more subject to the evil effects of fungi, insects, dry weather, frost, etc., than those that produce no pollen.

There can hardly be a question that the best market varieties at the present time have imperfect flowers. This is not alone because of the greater fruitfulness of varieties of this class, than those having perfect flowers, but because of more general reliability, *i. e.*, they more uniformly produce good crops. In many respects it may be desirable to have varieties with perfect flowers only, but it is possible that future developments will be along the line of still greater specialization. The highest development of fruit-bearing qualities in one class, and of pollen bearing in the other, gives promise of greater fruitfulness than to combine the two functions in one variety.

SUMMARY.

1. To meet the wants of strawberry growers, a variety ought to have sufficient health and vigor to adapt itself to widely varying conditions, and to possess one or more marked characteristics. It is not worth while to seek to find varieties that are adapted to particular soils, since varieties that have a limited range are generally found to be variable and untrustworthy. The most valuable varieties are the least variable and are easily suited to soil and climate.

2. The following varieties have been thoroughly tested and are suited to the wants of those who grow berries for market: Bubach, Eureka, Crescent, Haverland and Warfield.

3. When large berries are desired rather than quantity, the following can be recommended for home use or market: Cumberland, Crawford, Gandy, Louise, Miami, Pearl.

4. The new varieties that seem to be most promising, are Enhance, Farnworth, Ivanhoe, Middlefield, Muskingum, Michel's Early, Parker Earle, Shuster's Gem and Waldron.

5. The most productive varieties are those that have a long season, *i. e.*, give a comparatively large number of pickings.

6. Very early, and extremely late varieties, are less fruitful than medium early.

7. Perfect flowered, as a rule, are less productive than the pistillate, or imperfect flowered varieties.—*Selections by Strawberry Bulletin of the Ohio Experimental Station, by* JOHN LITTLE, *Granton, Ont.*

HORTICULTURAL HUMBUGS.

"It really seems as if the creature, man, was as anxious to be deceived in seeds as in quack medicines, for we do not hesitate to declare upon our reputation as seedsmen of repute that nine-tenths of the so-called new sorts advertised at high prices are, so far as merit goes, rank humbugs, and it is time the public were told so."—*Landreth & Sons (Philadelphia) Catalogue for 1890, page 2 of cover.*

THE above is a tremendous indictment and boldly and squarely made; made, too, by the oldest seed-house, we believe, in America, it having been established 107 years, or in 1874, and still holding its place in the front rank. Made by such respectable people it is entitled to rather more than ordinary attention, particularly when we hear it echoed by many respectable horticulturists and re-echoed by the much-victimized public.

Just now the catalogues come fluttering in like valentines on that good saint's anniversary; and, like them too, in every style, from the plain and practical to the very gay and gaudy. Some, if not quite true to nature, are yet clever creations of art.

Taking up one of these we find no less than twenty-two quarto pages devoted to "Novelties and Specialties." Many other catalogues are about equally ambitious to show as much of this kind of "bunting" as any admiral on the sea of horticultural adventure. Very few of this class are Canadian, it is comforting to note; and to know, further, that we can refer to, and rely upon, the plain and unpretentious catalogues of our own people in this line of business, such as those of Messrs. A. M. Smith, of St. Catharines, and Holton, of Hamilton, nurserymen, and G. A. Bruce & Co., seedsmen, Hamilton. The writer mentions these not by any means to disparage others, but from a long acquaintance of over a third of a century and a knowledge of their reliability and success. They could not have been thus reliable had their advertisements been of that class of Novelties, "nine-tenths of which are rank humbugs," as charged by Messrs. Landreth & Sons.

However, it is not with Novelties, or with the New, merely because it is new, that we ought to quarrel, or can afford to quarrel, but with the abuses of the name and with the iniquities the name Novelty is made to perpetrate. Progress is a law of the human mind, and signifies in the word itself, not only the improvement of the old, but also some displacement of the old by the discovery and invention of new and better in every line of human production. But that word "better" again implies trial—a proving of all things, and the "holding fast of that which is" not only "good," but that which is *best* both of new and old. To be tried, the new must be introduced to the notice of those who are expected to try. This, again, implies advertising and illustration. Here *Demand*, hungry

to voraciousness for improvements, meets Supply with his products, from the modest and unornamental, on through all that is probable—possibly on to every exaggeration of size, form, color, quantity and quality. We do not intend to stigmatize all these fine things as so many willful deceptions. It is easy to understand how an expert in horticulture, in possession of all the requisites for the highest success, finds little or no difficulty in obtaining many of these charming results, and so hastily conclude that his customers can do the same. Then, too, there are both culture and merit in aiming at the best, and the best to be aimed at must be held up to view. The general result, however, is that the customer trusting to these fine "appearances" gets wofully disappointed. It is nonsense to say, "Let the intending purchaser read up" before buying, for the very essence of a Novelty is that it is not in the books, and the representations are that none but the *one man* has that or those particular things to sell. Moreover, as the number of species is very great, amounting to hundreds now catalogued, and to many hundreds of varieties of some species (there are nearly a thousand varieties of roses alone), amounting all told to so many thousands, that not one expert perhaps could be found to identify every one. What then can he, who needs all his time to know and conduct his own specialty successfully, do toward protecting himself from horticultural quackery? As well call upon every man to be his own physician or his own lawyer. This unavoidable ignorance of the buyer is the opportunity of the jobber, and of the *impersonal* and irresponsible (because impersonal) nursery or seed company.

Armed cap a pie, with gorgeous pictures of many wondrous novelties, so called, some of them really new with nothing but their newness to recommend them, others nothing but new-named, old and long-ago discarded varieties, which have figured so often as novelties that they have acquired as many synonyms and *aliases* as a burglar or any other outlaw, the innocent and enthusiastic seeker after the "best," buys or subscribes for "The *ne plus ultra*—the Remontant Arbor Vitæ—the Persica Palustris, or seed of the Ever-blooming Fungus." We have hinted farther back that Canada is less afflicted with this plague than our neighbors. Well, we are so, first, because we have only about one-twelfth of their population, and according to Isaiah's, Plato's, and Matthew Arnold's Law of Numbers, we have only a twelfth as many as our cousins, open to this kind of fraud. This is our negative defence.—Our positive, is to some extent our fiscal policy, and also the characteristic prudence of our people, who are generally mindful of the admonition *festina lente*. Occasionally, some one buys, not because he wants the "wonder," but because he *don't* want the agent in his house any longer. And of the most cautious, now and then, one gets ensnared. The following, told by a very worthy old lady to the writer, will illustrate. She had a respectable collection of house plants, and, like all amateurs, desired to add beauty to beauty and novelty to novelty. The ubiquitous agent was presently there and offered her a wonderful "New Moss Rose," price $1. She subscribed—in due time it came. It was tenderly and assiduously

cared for, notwithstanding the "moss" upon it was preposterously coarse, sharp and vicious. At last it leaved and bloomed, a true rosaceæ indeed, but not a Moss Rose; just a wild, red raspberry. It was nothing poisonous! This is one person's experience. The writer can give many more within the circumscribed range of his own experience. All of them tend to justify the aforesaid "indictment."

The next question is what can be done to remove this "bar sinister" from the escutcheon of Horticulture, the oldest in nature and art, whose "base" sustains, whose "border" encircles with a girdle of beauty every other enterprise of man. Laws applicable to other frauds are inadequate to grapple with this. For long before the *ne plus ultra* apple fruited, or the "Moss Rose" bloomed, and by so doing furnished the necessary evidence for convicting and punishing, the transgressor is perhaps at the Antipodes, successfully pursuing his nefarious trade in the same "now you see me now you don't" mode. It may be that he is dead, and an ornate monument twelve feet high over his grave to carry down the memory of his many virtues to future generations, to evoke their gratitude and emulation.

The writer is aware that some useful work has been done toward "reform of the nomenclature. This cannot meet the whole case. It may be the "pound of cure," what we want is the "ounce of prevention." Omitting details: what is there to prevent the enacting of a law demanding in every case, as in application for a patent right of invention, a specification setting forth the distinctive differences and characteristics of the new candidate from every other known member of the floral family? These differences to be verified by a competent authority, and then sworn to and registered. Such a law to have all the customary penal enactions of heavy penalties for gross frauds.

The question has its difficulties, no doubt. So has every right that is attempted to be protected or is protected against wrong doing.

Milton, Ont, S. P. MORSE.

THE GRAPE: AN ORIENTAL LEGEND.—Four travellers, an Arab, a Turk, a Greek and a Persian met at a city's gate; it was decided that one of them should take the combined moneys of the four and purchase for the common stock the food which they needed; but they differed each from the other as to what food should be chosen; the Arab insisted that no food was so sweet and nourishing as the agub, while anghar was the food the Persian desired. The Turk said that azum was the only thing which they should eat, while the Greek contended that symphalion was the choicest of all the foods which men could eat. As they thus quarreled one with the other, before their eyes a gardener passed with grapes. "See, agub!" cried the Arab. "No, it is anghar," said the Persian. "This is azum," said the Turk. "That is my symphalion," cried the Greek, and so they ate their grapes in peace.

DOWNING'S PEAR FOR HOME USE.

I give below a list of pears that ripen in succession from the last day of July to the first day of February. A single tree of each kind will be sufficient for a moderate sized family, and two of each kind for a larger one. The list is long, and though some of the varieties named ripen nearly at the same time, yet in unfavorable years some kinds might fail when others of the same season might not. This list is for family use, and for those that have sufficient room to grow them :

1. Summer Doyenne.
2. Giffard,
3. Dearborn.
4. Manning's Elizabeth.
5. Tyson,
6. Margaret,
7. Bartlett,
8. Boussock.
9. Seckel,
10. Sheldon.
11. White Doyenne.
12. Gray Doyenne,
13. Bosc,
14. Frederick Clapp.
15. Comice,
16. Souvenir d'Esperen.
17. Angouleme,
18. Emile d'Heyst.
19. Lawrence.
20. Anjou,
21. Dana's Hovey.
22. Josephine.
23. Vicar.

For those who have room for only one tree, my choice would be No. 13 ; yet the majority would probably choose the Bartlett. Second choice, 21, then the following numbers, according to the size of the garden : Nos. 4, 5, 6, 8, 10, 11, 16, 18, 20, 21, 23. The last one is generally for culinary uses, yet in some localities, when well grown and well ripened, it is a very good eating pear. The above named kinds are for this section and the middle states generally, yet they will vary more or less according to soil, locality, culture, etc. The number of trees of each kind to be governed by the demand in the market where sold. For either home use or market I would advise standard trees, which will give best returns for the amount of land, and the labor given them.

Charles Downing in *New York Tribune.*

GOOSEBERRY MILDEW.

At the recent meeting of the N. Y. Horticultural Society, Prof. Fairchild, of the U.S. Dept. of Agriculture, mentioned eau celeste, as an excellent remedy, prepared as follows :—Dissolve 2 lbs of sulphate of copper in 2 gallons of hot water ; in another vessel dissolve 2½ lbs. of carbonate of soda ; mix the two solutions, and when all chemical reaction has ceased, add 1½ pints of ammonia, then dilute to 22 gallons with water. This should be applied once before the leaves show in the spring, then three times during the growing season, being careful to wet thoroughly all the foliage and wood.—E. E. S.

PEACH GROWING IN NOVA SCOTIA.

SIR,—Some of your readers may be surprised at the statement that peaches can be successfully grown in the open air in Nova Scotia. But such is the fact. About five years ago I ordered six peach trees—all different varieties—from a nursery-man in Western New York, as a mere experiment. Only four of them survived the first winter and they have made excellent growth, except one, which is affected by blistered or curled leaf. The first three have all borne fruit. The fruit on two of them the last season surprised, not only my neighbors, some of whom had never seen peaches growing and could not name the fruit, but others who had visited peach growing sections in the U. S., and who declared they never saw their superior. I have eleven very promising younger trees; and some of my neighbors, profiting by the experiment, are ordering peach trees for this spring's setting. I would just add that, although we are situated about on the 45th parallel, the mercury seldom falls below 0°, and very rarely 10° below zero, and I suppose it is the mildness of our winters that so favors the production of this fruit.

North Kingston, N. S. JOHN KILLAM.

MANURING BEARING ORCHARDS.

ON my orchard of bearing trees I haul out as many as forty wagon loads of manure to the acre every year and spread it over the ground. I mulch my trees thoroughly. I think it is an impossibility for a tree to bear fruit and live any length of time, making a thrifty growth unless the ground is properly manured. If it requires all the vitality there is in a tree to ripen and mature its fruit without making growth it will not last long. I have observed that from experience. If we can keep the ground rich enough to make a tree have considerable growth, besides maturing its fruit, then there is a proper prospect of its living a number of years.

I have trees in my orchard that have now stood there 28 years, and to-day they are just as healthy as they were 20 years ago; at least I sold more than four tons of apples from an orchard of Duchess of Oldenburg, seven by nine rods in size, this season. The trees bear every year; but this result is only accomplished by means of heavy manuring and mulching. I have other trees likewise that I treat in the same manner. I find as they grow older that they require more mulching. The vitality in a tree must be kept up. It appears to me there is a similiarity in animal and vegetable life. We must feed a tree, because it is very exhausting for it to produce its fruit each and every year. The results with me from mulching have been very satisfactory. It keeps the ground in good condition and does not let the grass grow. However, manuring may be overdone with young trees, but when a tree comes into bearing it needs much food.—*Minnesota Horticultural Report.*

New or Little Known Fruits.

TWO NEW BERRIES.

MR. J. T. LOVETT, of Little Silver, N.Y., very kindly sends us cuts and description of his new berries, which he claims merit general distribution. One is a strawberry, originating in Kentucky about five years ago, a chance seedling, probably a cross between Wilson and Crescent. It is described as above medium in size, averaging large and uniform, and seldom ill-shaped. Its season is early, second only to the Crystal City; and in productiveness unexcelled, succeeding even on poor, light soil. Color bright crimson; blossom perfect, and foliage very healthy.

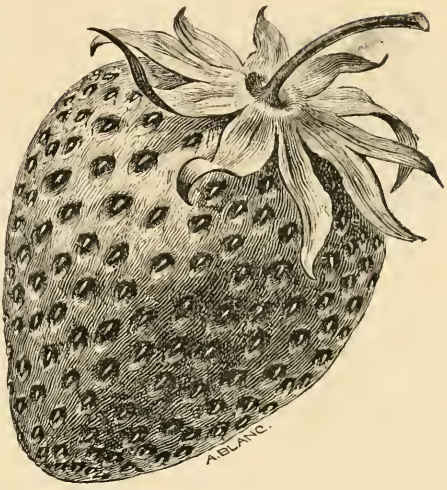


FIG. 31.—LOVETT'S EARLY.

FIG. 32.—THE LOVETT.

The other is a black raspberry, said to be as large as the Gregg, earlier, more productive and much hardier. If it should bear out these claims it will be an ideal berry indeed. This raspberry is also a chance seedling, originating in Indiana, where it has been fruited for some years by the side of Doolittle Improved, and Gregg, and has been found to ripen as early as the former, to be as large as latter, very firm, sweet, and of finest flavor. We shall take the earliest opportunity of testing the real worth of these two novelties. It seems almost a misfortune that the names should be so similar as Lovett's Early Strawberry and The Lovett Raspberry.

The Kitchen Garden.

ASPARAGUS.—III.

THE MARKET PLANTATION.

WHILE for one's own table, asparagus should be cut and cooked in the same hour, by judicious handling the product of a field may be kept two or three days and be fresh and plump for the market. This is done by standing the bunches in fresh water and renewing it once in twelve hours, removing a little of the loose ends of the bunches with a sharp knife just previous to placing it on the market. My practice is to keep my field clean of all sprouts from the beginning to the end of the picking season. A shoot that is grassy or gnarled is thrown away or fed to the calves.

The plantation should not be weakened by too long a season of gathering. A good rule to follow is to stop when the early peas are ready to market from adjoining land.

I have given a good deal of attention to the literature of asparagus profits and confess that while my own product compares favorably in quantity with that secured from the same area by eastern gardeners, my profits are but a fraction of theirs.

The growing of asparagus as a field crop, however, in our State, may be made a source of considerable profit, even at moderate prices. The labor, after a plantation is once established, comes at a season when it is least felt. The income, on the other hand, materializes at a season when it is most needed—before other sources have begun to render any assistance.

Two exigencies have materially reduced the profits from my own field: (1) untimely frosts, which may in a single night nip the buds which would otherwise mature into a full picking; (2) a hard wind will occasionally arise just as a picking of shoots is nearly ready, and blow particles of sand against them, puncturing the epidermis and inducing a gnarled, monstrous and often woody growth, thus destroying the picking for market.

To avoid evil results from the first contingency, I shall this year smooth my field in autumn and spread over it a coating of coarse barn manure. This will make a protection for winter, and in spring this will be hauled between the rows and be in readiness to quickly draw over the young buds upon a sudden depression of temperature indicative of frost. This can be done at a very slight expense and perhaps the investment of a few pennies may save as many dollars.

For the second difficulty I have no remedy, because the field is so situated that I cannot protect it from the prevailing winds by any wind-break. Had I

forseen it, before making the plantation, a more protected location might have been chosen.

INSECT ENEMIES.

The only insect enemy of asparagus which has appeared yet in our State is the cutworm. Clean and continuous culture in early spring, following autumn plowing of the surface, has reduced this pest to a minimum with me.

That persistent enemy to the culture of this esculent, the asparagus beetle, which appeared in eastern plantations as early as 1860, has not reached us yet.

ORNAMENTAL USE OF ASPARAGUS.

If it were not a common kind of vegetable, asparagus would take a prominent place as a lawn decorative plant. Its airiness and delicacy, combined with its pleasing tint of green and its perfection as a screen, render it one of the most useful ornamental plants.

It is inexpensive, grows rapidly, and requires little care. Many an unsightly corner may be made attractive by its employment, and its usefulness in the kitchen garden ought not to reduce its popularity for ornamental purposes. Altogether, asparagus is one of our most valuable importations from across the sea, and while we may not rival our French brethren in the quality of the product we secure from the plant, perhaps our tastes are not so highly cultivated but that our own product is as satisfactory for our own people.

Chas. W. Garfield, before *the Michigan State Hort. Society.*

TRANSPLANTING ONIONS.

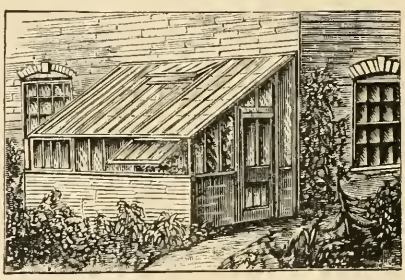
IN a bulletin of the Ohio Experiment Station for October last, we find some further points on the practice of transplanting onions. It seems that Mr. Green, the horticulturist, has also been making experiments in the same line as Mr. Greiner, and with the same results. He finds that by transplanting, the yield of the onion bed can be increased in some cases about 100 per cent, especially with such late ripening foreign varieties as the Pompeii, Prize-taker and the White Victoria. In explanation Mr. Green mentioned three causes which appear to produce the increase in yield: first, longer period of growth of transplanted onions than those sown in the field; second, the advantage of making the greater share of their growth earlier in the season during the cool weather; and, third, the greater uniformity in size. With regard to the expense incurred by the extra labor in transplanting, he says that that is offset by the saving of labor in weeding. Indeed, Mr. Green assures us that the cost of growing a crop is actually lessened, instead of being increased, by transplanting, and further that the finer appearance of the transplanted onions and their increased market value over those grown by the common method gives this plan a very decided advantage.

A NEAT LITTLE GREENHOUSE.

IN England amateur greenhouses, something like the one illustrated, are very common and may be of any size to suit the purse of the owner, from that of twelve feet by eight, as the one shown, which is called a lean-to, or backing up against some part of the dwelling, upwards.

Such houses are there contracted for complete, and come as low as $55, and may be easily constructed here for $100. It should, however, always conform in a measure to the style of the house.

The principal difficulty in such houses is the heating in our cold northern winters. It is an error to depend upon borrowed heat from the rooms for either these or the inclosed piazzas. What is wanted is a snug little heating apparatus that will not consume much coal and that will last all night without attention. Even this part is not thoroughly satisfactory in the old country, if we are to believe a late writer, who claims, on the whole, that the old-fashioned flue comes nearer being satisfactory than the numberless apparatuses advertised therefor. And yet with our hard coal a properly-contrived boiler and pipes should meet all the requirements. And it undoubtedly would if expense is left out of the count.



What has been said about these glass houses drawing heat in the dog-days, holds good with double force with this class of structure, and our advice would be to attach them in such a way as not to inclose any important window space, or the summer heat will surely be a nuisance.

Now-a-days, when nearly all carpenter-work is got out complete at the large factories, any one living near them can ascertain exactly how much the material will cost, and then a carpenter in a few days will put it up.—*Prairie Farmer.*

SETTING OUT ORCHARDS.—Many orchards are set out in autumn; still more in spring; but whether set in autumn or spring, the ground should be well prepared in autumn. If the soil holds water in wet season, it must be well underdrained. Subsoiling in most localities is of much value. This work, it is true, may be imperfectly performed after the trees are set and are growing, but the work is more easily done, and in a better manner beforehand. Some persons mistakenly recommend setting trees where nothing else can be raised, as on hillsides or among rocks and stones; but as a good and well managed orchard is commonly more profitable for the acre it occupies, than almost any crop, the best ground should be chosen for it, so that good cultivation may be given. It was formerly recommended to dig wide holes. This practice answered well for a limited number of trees, where the subsoil was hard and had not been loosened.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

BLACK HEART.—Dr. Hoskins' opinion is that this is a disorganized wood, caused by the rupture of the sap passages by severe cold. The sap spreads in between the fibres of the wood, and runs black. Pruning trees during severe winter weather renders trees more subject to this evil.

THE WEALTHY APPLE is extolled by our Quebec friends as a most valuable apple, and hardy tree, but not as being free from faults, the chief of which is overbearing. Mr. Shepherd says that 50 per cent. of his crop, year before last, was too small for market.

A PAYING CHERRY TREE.—A writer in *The Fruit Growers' Journal*, Illinois, writes that his best cherry tree is a Napoleon Bigarreau, budded on a Mahaleb. It is over one foot in diameter at the base, some twenty feet high, round headed, and the top is about thirty feet in diameter. For three years past it has produced from $12 to $16 worth of fruit each year!

THE WEAVER PLUM, favorably mentioned by Mr. A. A. Wright, of Renfrew, on page 352 of Vol. 13, is also highly commended by Mr. J. S. McLelland, of Northern Colorado. He says: "It is the largest of the native plums I have grown, and probably the best one to eat out of hand. The tree is a free, upright grower and very prolific, a superb plum in every way."

THE BEST WINTER APPLES.—At a recent meeting of the Montreal Horticultural Society, Mr. J. T. McBride said he found his customers in Montreal, in buying apples for family use, usually asked for Baldwins, Spies, Greenings and

Russets, and although they would take a few Kings or Spitzenbergs, they usually objected to any other kinds. He also found that the fruit that makes the most money is usually that which reaches market first, that is, of each variety as the season advances. A pretty and attractive parcel was very important, and was sure to command a higher price than the same fruit put up in an ordinary style.

IRON CLAD APPLES.—By this term is meant such apples as cannot be seriously injured by the winter's cold, and it is of course only a relative term. Dr. Hoskins, of Newport, Vt., gave our Montreal friends the following list of iron-clads: McIntosh Red, Borsdorf, Bethel of Vermont, Tetofsky, Shiawassee Beauty, Wealthy, McMahon's White, Northfield Beauty, Scott's Winter, Iowa Russet, and Yellow Transparent.

Mr. N. C. Fisk, of Abbotsford, gave the following as the most profitable varieties for market for planting in the province of Quebec: Duchess, Wealthy and Fameuse, standing thus in order of merit, but Dr. Hoskins claimed that the Yellow Transparent was more profitable than the Duchess.

The Golden White is very promising, and keeps, according to Dr Hoskins, well into the month of January.

PROFITABLE PEACH GROWING.—Mr. J. H. Hale, of Massachusetts, seems to have made a fortune out of peach growing. He thins the fruit by pruning the trees after blooming, and afterwards picks off more than half the fruit. He manures with ground bone and muriate of potash, applying 1000 pounds or more of the former and 300 of the latter, to an acre. He finds that too much stable manure causes short lived and unhealthy trees, but if any trees look unthrifty, he applies six or eight pounds of nitrate of soda to each. He has his fruit nicely assorted and packed, employing ladies of good taste, who are paid as high as $2.00 per day on account of their superior qualifications. The fruit is put up in new baskets made of white poplar, labeled and guaranteed to be just as good in the middle or bottom of the basket as on the top, and his fruit brings from 75c. to $1.00 more than any other. He makes four grades. Last year, according to the *Rural New Yorker*, he sold 16,000 baskets, the best grade selling from $2.50 to $3.50 per basket, the culls from 15 to 40 cents, and the whole averaging about $1.56.

Question Drawer.

SPRAYING PLUM TREES WITH COPPER SOLUTIONS.

SIR,—I have about 150 old plum trees, and about 1000 young ones, five years planted. I am well versed in spraying with Paris Green. I divide a pound into six parts, and use one part in a 40 gallon barrel. I can spray 1000 trees per day. I would like to know something about spraying with copper solutions.

THOS. PLUNKET, *Meaford.*

According to Prof. Maynard, of Amherst, Mass., the plum curculio, the black knot and the rotting of the fruit, may all be overcome by treating with Bordeaux mixture and Paris green, at least, such was the result of his experience last year on the College grounds. The plum wart was prevented by it, and the few knots that gained a hold on the branches were destroyed by applying a kerosene paste. This paste is simply kerosene, with some dry pigment added to make it conspicuous. To be effectual this paste must be applied early in the season as soon as the knot begins to enlarge.

His treatment with copper solutions is the same as that described on page 102 for apple scab, viz.: applying sulphate of copper before leaves expand, then the combined Paris green and Bordeaux mixture until, say July 1st, after which either the latter or the ammoniacal carbonate of copper.

PROPAGATING ROSES BY LAYERS.

SIR,—Would you kindly give me some directions for propagating young plants from a climbing rose.

J. M. WELLS, *Pinkerton.*

The following reply from "Parsons' on the Rose," is submitted by Mr. W. C. Barry, of Rochester.

This mode is more particularly applicable to those roses that bloom only once in the year, and which do not strike freely from cuttings, although it can be equally well applied to all the smooth wooded kinds. It can be performed at midsummer and for several weeks afterward, and should be employed only in those cases where young shoots have been formed at least a foot long and are well matured. The soil should be well dug around the plant, forming a little raised bed of some three feet in diameter, with the soil well pulverized and mixed with some manure thoroughly decomposed, and, if heavy, a little sand. A hole should then be made in this bed about four inches deep, and the young matured shoot bent down into it, keeping the top of the shoot some three or four inches above the surface of the ground; the angle thus being found, which should always be made at a bud and about five or six inches from the top of the shoot, the operator should cut off all the leaves below the ground. A sharp knife should then be placed just below a bud, about three inches below

the surface of the ground, and a slanting cut made upward and lengthwise, about half through the branch, forming a sort of tongue from one to two inches long, on the back part of the shoot right opposite the bud; a chip or some of the soil can be placed in the slit, to prevent it from closing, and the shoot can then be carefully laid in the hole, and pegged down at a point some two inches below the cut, keeping, at the same time, the top of the shoot some three or four inches out of the ground, and making it fast to a small stake to keep it upright. Care should be taken not to make the angle where the branch is pegged at the cut, as the branch would be injured and perhaps broken off; the best place is about two inches below the incision. The soil can be replaced in the hole, and where it is convenient, covered with some moss or litter of any kind. This will protect the soil from the sun and keep it moist, and will materially aid the formation of new roots.

PLUMS AND SMALL FRUITS.

SIR,—I have bought me a small place, eighteen acres in extent, near the town of Norwich, which I propose to devote to the cultivation of fruit. It is an excellent piece of clay loam, and on it two acres of an old orchard, consisting of about forty trees. These I have trimmed and scraped, and shall tile drain the ground in the spring. How do you think plums and blackberries would do to fill up these two acres, or do you think currants and gooseberries would be better? The land has been in meadow for some years, but I have had it fall plowed and will give it a good dose of ashes in the spring.

J. A. TIDEY, *Norwich.*

Unless the old apple trees are of desirable varieties, it would be wiser to take them out root and branch, in order that the two acres might be planted wholly with plums, for no young trees will be able to make a good vigorous start in the shade of old apple trees. The same may be said of almost any of the small fruits. Plums ought to succeed well on such a soil as is described by our correspondent, but in our experience, blackberries do not succeed upon clay loam as well as upon sandy loam. We have found gooseberries and currants better adapted to clay loam than blackberries, indeed, the currant is much more productive upon heavy than upon light soil.

SALT FOR WIRE WORMS.

SIR,—Could you give me any information through the CANADIAN HORTICULTURIST, as to what amount of salt would be necessary to destroy wire worms in new land, without injuring other crops. The land was broken up last year, and my potatoes were badly eaten with them. I am told they are usually worse the second year. Please prescribe the dose, and oblige,

I. LANGSTROTH, *Seaforth, Ont.*

Reply by Prof. James of the Ontario Agricultural College.

1. The usual dose of common salt is about 300 lbs. per acre. It is very doubtful whether this would ensure the results desirable, though some benefit might result. I would advise increasing this amount by fifty per cent., but even

by this application complete success should not be always expected. 2. When the amount of salt rises to 0.1 % the land becomes sterile, this would require a dose of over one ton per acre, however, and is not likely to occur in ordinary farming. 3. The information regarding the use of common salt as an exterminator of insects, fungi, grubs and such pests, is limited and somewhat indefinite.

APPLES FOR MARKET.

Sir,—I intend planting 200 apple trees this spring on clay and gravel loam. Would you give me a list of the best kinds to grow for market, and would you advise planting any fall varieties? Would you recommend the Ohio Baldwin as a shipping apple, and is the Rhode Island Greening holding its own in the market?

H. Bodwell, *Mount Elgin, Ont.*

We have had no personal experience with the Ohio Baldwin, and would be glad to hear from any of our readers who have grown it. The old Rhode Island Greening is not only holding its own, but rather growing in value in our best markets, where its excellent quality for cooking purposes is becoming more fully known. The only difficulty with it is its inclination to spot, and, for this reason, some orchardists in the Niagara Peninsula condemn it. The Baldwin still stands No. 1 for the commercial orchard, and is one of the best known apples in the English market. The King of Tompkins heads the list for price, and would be a most desirable variety if it were only a better bearer. The Northern Spy and the Roxbury Russet must not be omitted. Among fall apples there is one which always commands a high price, both in the home and foreign markets, and that is the Gravenstein.

NEW GOOSEBERRIES.

Sir,—Could you give me any information where the King Conn gooseberry, and also the Crosby's Seedling could be secured? The latter was highly spoken of in a back number of the Canadian Horticulturist, but I have not seen either of these varieties quoted in any nurseryman's catalogue.

W. H. Parker, *Mimico, Ont.*

The King Conn is now known as the Autocrat, and is still in the hands of the introducer, Mr. P. E. Bucke, of Ottawa. It is a green gooseberry of good size and very productive, and not affected by the mildew. Whether it is really a new variety, or some old variety now likely to be brought prominently forward, we are unable to say.

The Crosby's Early is a large dark red seedling gooseberry, apparently of great value, samples of which were sent to us by Mr. Arthur Reeve, of Highland Creek. He said it was a seedling, grown by Mr. Crosby, of Markham; it is no doubt a seedling of some English variety, for it has lately shown some tendency to mildew, according to the habit of these kinds. So far as we know it has not been propagated.

VARIETIES OF PRUNES.

SIR,—Would you be so kind as to inform us whether the Italian prune, French prune, Prune d'Agen and Fellemburg are the same, or names of different varieties?

ALLAN BROS, *Winona, Ont.*

The Fellemburg is an Italian prune, and the Prune d'Agen is a French prune. The terms Italian, French and German prune are somewhat general, and may each include several varieties, having similar characteristics. For instance, there is a variety of the German prune grown at Collingwood, known as Baker's German Prune, which is counted by them the most profitable plum that can be grown in that district for market.

There is a prune known as the French prune or Petite prune, a good bearer and excellent for drying, but it is not of as good quality as the Prune d'Agen, and not as hardy. Mr. Felix Gillet, a famous plum grower of California, says of the latter: "This is the kind that produces the famous French prune, shipped all over the world from Bordeaux; it is the very variety cultivated in the great prune district of the Lot, with Agen for an entrepôt. It is of medium to large size, sometimes quite large; and generally pear-shaped, tapering toward the stem. Very productive." It must be grown on the plum root.

THE MOUNTAIN BEET APPLE.

SIR,—I see in our HORTICULTURIST for the year 1878, page 50, Dr. Hoskins describes an apple called the Mountain Beet. Can you give any information about it? I have been looking for a report of it, but have never seen it spoken of since.

J. PEGG, *Kolapore.*

Reply by Dr. Hoskins, Newport, Vt.

Regarding the apple called Mountain Beet, I regard it simply as a curiosity in having a red flesh. It has no particular value otherwise, and like so many Quebec apples, it suffers greatly from the spot fungus.

PEARS FOR THE NORTH.

SIR,—Will you please tell us through the HORTICULTURIST, what would be the two best kinds of pears for this section of country?

L. PASCHE, *Bryson, Que.*

Among our first quality pears, there is perhaps none, more often commended for northern sections, than the Flemish Beauty, for, although worthless in southern Ontario, on account of the scab, it is one of the best at the north. The late Charles Gibb recommended it for the Province of Quebec, and, in addition, the following three: Clapp's Favorite, Oswego Beurré and St. Ghislain.

THE RUSSIAN MULBERRY.

SIR,—Would you please give your opinion as to the hardiness of the Russian Mulberry, and the quality of its fruit?

P., *Grenville, N. S.*

Reply by Prof. Budd, of Ames, Iowa.

I do not regard the Russian Mulberry valuable for either fruit or timber. Our Horticultural Societies have voted that it was good for a prairie windbreak in the part south of 42nd parallel, and to feed the birds. This about tells the story. In Russia the foresters laughed when Mr. Gibb asked about the value of the mulberry for timber. They called it a bushy shrub of large size. Our Native Red (morus rubra) is far more valuable for any use.

SOIL FOR CHESNUT TREES.

SIR,—My soil here is a heavy clay; do you think the Japan chesnut would succeed any better in such soil than the American variety? I have planted the latter twice and they will not grow. I have also tried the Japan chesnut, but without success. If you think there is any hope of it, I would like to give it another trial.

WM. TURNBULL, *Brewster, Ont.*

The chesnut tree flourishes best in sandy soil; indeed, the natural growth of this timber is usually found on sandy knolls, and we think it very questionable whether it would ever amount to anything upon heavy clay.

DEMPSEY PEAR.

SIR,—Is there any progress being made in the proposed line of distributing the Dempsey pear?

N. BURPEE, *Marysville, N. B.*

We understand that this pear has been purchased by Messrs. Stone & Wellington, of the Fonthill Nurseries, and will shortly be placed upon the market. It is thought by those who have seen it and tested its quality, that it will take a high rank among our valuable varieties of pears. It is a cross between the Bartlett and the Duchess, and has many of the characteristics of each.

GRAFTING THE PEACH.

SIR,—I wish to know if any of your readers have successfully grafted the peach. If so, I would like to have some information on the subject.

JOHN KILLAM, *North Kingston, N.S.*

The peach tree cannot be top-grafted with success. It is propagated by budding, some account of which is given in another part of this number.

SPREADING MANURE.

SIR,—Will you please tell me if it is a good plan to spread well rotted manure in the trenches that are prepared for grape vines and raspberry plants? W. M. M.

Fertilizers of all kinds will have much better effect upon the vines and plants if they are thoroughly incorporated with the soil in which the roots are to grow, than if placed along in the trenches themselves, in direct contact with the plants.

PRUNING EVERGREENS.

SIR,—When is the proper time for pruning evergreens?

JOHN A. TIDEY, *Norwich.*

Evergreens may be clipped at almost any season of the year, but they will be the least checked in vigor by pruning them in the month of June, just as the new growth is pushing out.

RUSSIAN MULBERRY.

SIR,—What kind of fruit can be grafted on the Russian Mulberrry? I ask the question because it is a useless tree for fruit bearing.

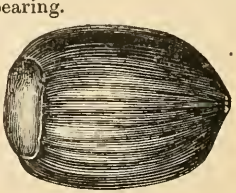
WM. DOWN, *Stratford, Ont.*

Can any of our readers answer this question?

Open Letters.

FILBERT GROWING IN ONTARIO.

SIR,—I can add little to what I have said already, regarding my Kentish Cob nut trees. My trees are about twelve feet apart in the row and they interlap, making quite a wind-break; like the wild Hazel, they are inclined to *spread*. I judge fifteen feet would be about the proper distance. I mentioned the twelve trees average from two to three gallons a year, and I have had as high as eight or nine. All trees from nuts I ever planted have fruited more or less, and they begin bearing in four or five years. This Kent nut, you see, has a thicker shell than the fibert, and is more like the common hazel. The Filbert, from what I hear from the States, are short-lived and very shy bearers; and one account I read of them accounted for their poor bearing, from the blossoms not being properly fertilized. A tree by *itself* I cut down because of its poor bearing.



KENTISH COB NUT.

Never having had enough for market purposes, I cannot judge of the price. In the old country, fresh nuts with their *hull on*, sold from ten to fifteen cents per pound. I now have between 200 and 300 one and two-year-old trees, intending to plant an acre; but as land is scarce with me and more valuable for *grape* purposes, I will dispose of part, say, 150, if any of your neighbors or friends desire them for experiment. I would take $20 per hundred. I have a row of twenty trees, planted four years ago, which I expect to begin bearing next year. I noticed a nut or two on one this fall. The nuts are all shapes and sizes, but with attention and selection, one may expect to improve them in quality, etc. I have never grafted or budded any. They *will* sprout out from the bottom, and I expect a single trunk would be hard to manage.

E. WARDROPER, *Pelee Island.*

We notice very valuable comments on the prospects of filbert growing in the United States, by Mr. W. D. VanDeman, United States Pomologist, in an address read before the Massachusetts Horticultural Society. He says that, so far, these have not been grown in the United States; but there is a great demand for them in our markets, where every pint exposed for sale is imported from the Old Country. He says that he is making it a special point to import the Kentish filbert from England, in order to have it tested in the United States, and he seems very confident of success.

PRICKLY COMFREY.

SIR,—I think you would be conferring a great benefit on your readers by directing their attention to the most productive of all forage plants, Prickly Comfrey.

Mr. Kinard B. Edwards, of Leicestershire, England, a well known authority on farming matters, thus writes of it; "It affords a cutting earlier and later than almost any other plant. If cultivated upon good deep soil it will yield a heavier crop than any other plant, and when once planted it will last forever. It is very hardy. The first year as much as 20 tons to the acre may be obtained, the second year 50, and every year after 80 to 100 tons. Few crops will be found so useful or more easily cultivated."

The writer has known 3 horses and 3 cows fed in the stable from early summer to late autumn entirely upon the produce of an acre of it the second year after planting, and the horses were in splendid condition and the cows yielding more milk and of better quality than if they were on ordinary pasture. From personal experiment I find our climate here suits it well. It is the first thing to show up green in the spring and goes on growing till late autumn yielding 5 or 6 cuttings. It is grown from crowns or root cuttings and a start may be made with a few, as every spring till your plantation is as large as you require; the roots may be raised and divided into about 12 parts and 12 times the area of ground planted. We started here with 20 root cuttings and hope this spring to have about half an acre planted. As a change from winter feed, horses, cows and weaned calves eat it with avidity in the stable and barn yard, but if turned out to pasture first, they do not care so much for it afterwards, so it is especially adapted for farmers' use for early feeding in the stable and enabling them to give the pasture fields a good start before turning cattle out in the spring, and for those who living in towns and villages keep a horse or cow with only a small plot of land, from which they would like to procure the greatest possible amount of feed. From the 15th to 25th April is the best time for planting Prickly Comfrey.

The land to be planted with Prickly Comfrey should, if practicable, be ploughed in the fall, and as soon as you can work it in the spring, harrow it down, and plough furrows from end to end a yard apart; then in the bottom of the furrows, at intervals of a yard, put a small shovelful of rotten manure; cut the Prickly Comfrey roots into pieces, each having one crown or more, and in the centre of each shovelful of manure place one of these root cuttings so that the top of it will be about 2 inches under ground when the earth is levelled; with a rake or hoe pull the earth back again into the furrows, leaving the ground level. In a few weeks the plants will push through a yard apart every way. As soon as they are grown sufficiently to show their whereabouts distinctly, cultivate between the rows both ways to keep the weeds down, and repeat this as requisite during the season. The plants should be cut at about 3 inches from the ground for green fodder when they attain the height of 2 or 3 feet and before the blossom opens. In about a month or six weeks, according to the weather, a second cutting may be obtained, and so on through the summer and autumn, the growth being so rapid that the new growth of plants cut one day is quite distinguishable from that of the next preceding and succeeding day's cuttings. The plantation should every year be treated to a dressing of short manure. If preferred, instead of ploughing furrows, holes may be dug a yard apart and the planting, be proceeded with as before directed. The middle of April is the best time for planting.

N. B.—For convenience the plantation should be as near the stable as possible.

ARTHUR GEO. HEAVEN, *Boyne, Halton Co.*

FRUIT IN QUEBEC.

SIR,—I send you a bit of report from Bryson, Que., situated a little over 45½ degrees north latitude :

Apples.—Nearly all my surviving trees being yet too young to bear, I had only three varieties of big apples last season, viz., the Wealthy, the Peach, and the Yellow Transparent. These are early and splendid fruits, and were sold in the village at retail for two cents each for the largest, so there would be money if we had plenty of them here. I saw no better specimens of these kinds at the Ottawa Exhibition.

I had a large crop of three varieties of crabs : Transcendent, Lady Elgin, and Hyslop. These last, if carefully gathered before too ripe, keep well.

Grapes.—I had six kinds of grapes pretty well ripened before the great frost of the 24th of December. I will name them in the order in which they ripened : Wyoming Red and Champion at the same time ; Moore's Early and Dracut Amber ; Lindley and Delaware. For the north I would strongly recommend the Wyoming. When visiting the Experimental Farm at Ottawa, on Dec. 22nd, I was surprised to see the same varieties there not quite so ripe as mine, though the leaves were far less injured by the frost.

Small Fruits.—Currants were a fair crop with me, but gooseberries were nearly a total failure, on account of the berries dropping. Raspberries were a poor crop, with the exception of the Golden Queen, which is truly a queen over all the others.

L. PASCHE, *Bryson, Que.*

EARLY VICTOR GRAPE.

SIR,—I have taken the CANADIAN HORTICULTURIST ever since 1886, and have read it with the greatest interest. I notice letters written from amateur gardeners concerning plants which they have received as premiums. The first plant that I received was in 1886, when I received a grape vine, called the Early Victor. I took six bunches of the grapes from the vine and showed them at our last fair, and they took the second prize. I took about one hundred pounds from the one vine. I could give you a good account of the various gooseberries, currants, and other small vines and trees received, if it would be of any use to your readers.

WM. WORTH, *St. Thomas.*

FRUIT IN HURON COUNTY.

SIR,—The season of 1890 has been a fine one for fruit in this county, except where apple insects have prevented. Raspberries and strawberries have suffered most, the latter, especially, not succeeding as well as a few years ago. The Jessie does not fruit well, and I lost the Bubach plants which you sent me, probably through applying hen manure to the soil. My neighbor, Mr. Stewart, lost quite a number of strawberry plants by an over-application of ashes and salt to the soil before planting. Gooseberries and currants, cherries and plums, have done well. Some varieties of apple trees have been laden with fruit.

It would be very interesting to have in the HORTICULTURIST more letters from members of the Association, giving their experience in fruit growing.

SAMUEL FEAR, *Brussels, Ont.*

Our Book Table.

CATALOGUES.

FRUIT TREES, PLANTS AND VINES. Annual Catalogue, Helderleigh Farms Nursery, Winona, Ont. E. D. Smith, proprietor.

SMALL FRUIT PLANTS. Annual Catalogue, Allyn Bros.' Nurseries, Palmyra, Wagne Co., N. Y.

FERTILIZERS. Dominion Fertilizer and Casing Works 1891, Animal and Bone Fertilizers, 255 James St. North, Hamilton, Ont.

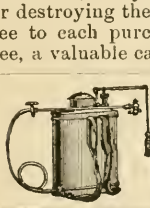
Our Markets.

MONTREAL AND GREAT BRITAIN.

The Montreal *Trade Bulletin* says of the apple market:—Advices from the English markets are not so favorable this week as they have been of late. It seems that the Maine apples ex SS. Toronto arrived in very bad condition, and in consequence fetched poor prices. It cannot be said too often, that nothing less than first-class fruit, in prime condition and well packed, will ever pay the cost of shipping to the British markets, and deficiency in any one of these essentials is always more likely to make a loss than a good profit. The losers in this instance are our cousins over the border, so that we can with great complacency "point a moral" at their expense. On the whole the season has been profitable to Canadian exporters, and should encourage them to use every effort to keep up and increase the good name that Canadian shippers have earned in the past. On spot there has been a fair demand considering the high price at which the fruit is held. Fair to good qualities have sold at $3.50 to $4.50 per bbl., and we hear of the sale of a car load of "fancy spies" at $5. We quote $3.50 to $5.50 as to quality.

FRUIT GROWERS ATTENTION.

There is no work on the farm or garden that will pay better than spraying your fruit trees and vines. The large number of experiments that have been conducted by our leading Entomologists and fruit growers show that the ravages of insect pests of different kinds and nature can be checked by properly spraying your trees. Mr. P. C. Lewis, of Catskill, N. Y., manufacturer of the celebrated Lewis Combination Spraying Outfit, has recently published a book of 64 pages, on "Our Insect Foes and How to Destroy Them." This book is profusely illustrated, many of the illustrations showing the insect at work. The best and latest receipts for destroying them are given. This book has been gotten up at a large expense and is given free to each purchaser of one of the above mentioned spraying outfits. He also publishes free, a valuable catalogue on the importance of spraying fruit trees.



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Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using EXCELSIOR SPRAYING OUTFITS.

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SPRAYING OUTFITS.

LATEST IMPROVED, CHEAPEST AND BEST.

OUR EMPIRE Stirs the Liquid Automatically and will spray one hundred Trees per hour.

OUR KNAPSACK For Vineyards and Nurseries, is all Copper and Brass with a Vermosce Nozzle.

OUR VICTOR IMPROVED Is operated by horse power, for use in Vineyards or Orchards, has four nozzles, throws four sprays in Vineyard or two sprays in Orchard. We have Outfits ranging in price from $3 to $65. Write for our Circulars containing formulas, recipes and general information on the subject of Insects and fungus growth on Vines and Trees.

April 3t. FIELD FORCE PUMP COMPANY, Lockport, N. Y.

USE FERRY'S SEEDS

BECAUSE THEY ARE

THE BEST.

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SEED ANNUAL

For 1891 will be mailed FREE to all applicants, and to last season's customers. It is better than ever. Every person using *Garden, Flower or Field Seeds*, should send for it. Address

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Of the "CANADIAN HORTICULTURIST," in beautiful cloth case, handsome design, embossed in ink and gold, with gilt lettering, for sale at this office. Volumes 1 to 10, excepting 5, 6 and 9, which are out of print, at 75 cents each; volumes 11 and 12, with numerous illustrations and fine colored plate, at $1.25 each, post paid; 20 per cent. discount on orders of $5 or upwards.

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RABY Castle Currants, Grape Vines, Norway Spruce, Scotch Pine, Hardy Catelpa and Nursury Stock generally.

E. MORDEN,

Mch. 3t Niagara Falls South, Ont.

Plants of Large Strawberries. Best of New, best of Old.

Gt. Pacific, Edgar Queen, Lady Rusk, Shaw, Louise, Miami, Pearl, Parker Earle, Hatfield, Hinton, Beder Wood, Enhance. I would like all my customers to try the Enhance, and Michels Early.

Price list free, send for it. Address

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NEW MANUAL of Canadian Grown **PLANTS** for 1891 (sixty-four pages, Illustrated)

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A large monthly Journal. Contains all the news of the Dominion. Well Illustrated. Practical and Interesting.

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The Official Organ of the Canadian Kennel Club. Contains the C. E. C Registrations. Nicely Illustrated. Full of Practical Advice.

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All to one address, $1.75 per year.

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Nov. 12t. Toronto, Canada

Trees, Vines, Plants

ORNAMENTALS, Etc.,

Strictly First-Class.

Grape Vines and Small Fruits are specialties.

Send your order to the Central. (it will pay you). The Mailing Department receives Special Attention. Prices right.

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Feb. 12t

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Mch. 2t. ALLYN BROTHERS, Palmyra, N. Y.

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Freeman's Fertilizer Works,

Office, 255 to 257 James St. North,

HAMILTON, ONTARIO.

Manufacturer of the following High Grade of Fertilizer:

Sure Growth, Grape Food, Pure Bone Meal, Dissolved Bone, Farmer's Pride.

TESTIMONIALS.

W. A. FREEMAN, ESQ., Hamilton, Ont. Niagara Township, Jan. 16th, 1891.

Dear Sir.—The Fertilizer purchased from you last spring was used on grapes with best of satisfaction, securing a splendid crop free from mildew (grapes through this section were very much affected with mildew last season). I can recommend it as a good manure. Signed, PORTER ADAMS.

W. A. FREEMAN, ESQ., Hamilton, Ont. Galt, Jan. 21st, 1891.

Dear Sir.—Used your Fertilizer on grapes, raspberries, strawberries and other small fruits, with best results. Also on potatoes, securing a better yield of large smooth stock. I can recommend it to anyone wishing a good manure; you can depend on me as a regular customer, as I always intend using.

Signed, JAMES FINDLAY.

W. A. FREEMAN, ESQ., Hamilton, Ont. Niagara, Jan. 28th, 1891.

Dear Sir.—I used your Grape Food Fertilizer on peaches and pears, receiving a very abundant yield, the largest crop I ever had, and am pleased to place my order for over one ton more for the coming season's use.

Signed, J NIVEN.

W. A. FREEMAN, ESQ., Hamilton, Ont. Burlington.

Dear Sir.—The Fertilizer bought from you last season was used on different crops with great results. Raspberries, picked $150.00 worth from one-half acre, best crop I ever had. Tomatoes and celery gave forth extra good yield, and there is nothing to equal it for growing tomato and celery plants. I will always use it You will please send me another ton as I cannot afford to farm without it. Signed, J. W. BRIDGMAN.

W. A. FREEMAN, ESQ., Hamilton, Ont. Burlington.

Dear Sir.—The Fertilizer purchased from you last spring was used on young peach trees, new strawberry patch and celery, which gave best satisfaction. Peach trees gave three feet new wood to less than one foot where none was used. I consider there is nothing to equal it for celery and strawberries. Signed, P. Y. BABCOCK, J. M. BABCOCK, W. E. BABCOCK.

W. A. FREEMAN, ESQ., Hamilton, Ont. Trafalgar, Jan. 1891.

Dear Sir.—I saw your Fertilizer used by a neighbor last season on turnips and raspberries, which were planted on ground that had not been manured for at least 15 or 20 years, (consequently very poor) and can safely say there never was better crops grown in this section than they were. I am pleased to give my order for what I will want for this season's use, and can recommend it to others as a good manure. Signed, JAMES E. EARL.

W. A. FREEMAN,

Feb. 6t.

Mention this paper. 255 to 265 JAMES ST. N., HAMILTON.

Send for Catalogue and Price List. Mch. 2t. **Wanted, pushing Agents.**

Fruit and Ornamental Trees.

Largest Stock in Canada of Strictly Graded Canadian Grown

GRAPE VINES

Guaranteed true to name or money refunded, grown from wood of vines on the Helderleigh Fruit Farms. I am headquarters for the choicest, earliest, purely red grape before the public, the Moyer, ripens August 15th to 25th. A fine assortment of Plum, Peach, Pear and Apple Trees, Berry Plants, Norway Spruce, etc. Be sure not to order Nursery Stock until you get my price list, which will be mailed to you **FREE** on application. It will pay you well to wait.

E. D. SMITH, Helderleigh Farms Nursery,

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Paying $1 to the Secretary are entitled to receive:

(1) **A Bound Copy** of the Annual Report of 1890, containing full reports of all journals and discussions on the subject of Fruit Culture, well worth $1 to any fruit grower.

(2) **The Canadian Horticulturist,** a monthly journal especially adapted to Canadian fruit growers. The only journal in the interests of their own industry. Most papers on fruit growing are published by nurserymen in the interests of nurserymen.

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I. **Russian Apple.** Golden White, Sari-Synap or Stone Antonovka.

II. **The Mills Grape Vine.** A high quality Black Grape, said to make raisins. It has been sold by Ellwanger & Barry at $1.75 each. It originated with the late W. H. Mills, of Hamilton, who last winter gave the Fruit Growers' Association his whole stock.

III. **The Williams Strawberry.** A new Canadian variety which has created a great sensation about Brantford. It is a cross between Crescent and Sharpless and possesses the merits of each.

IV. **An Unbound Copy of the Canadian Horticulturist,** vol. i., ii., iii. or iv. These have no colored plates, but contain much valuable information.

V. **Triomphe de Vienne Pear.** (Stock Exhausted.)

VI. **Two Cannas, different colors.**

VII. **General Jacqueminot Rose.** This is one of the most satisfactory red roses for the lawn, a free bloomer and vigorous grower.

VIII. **Two Dahlias.** These will be started in hot bed ready for planting out.

ALL AGENTS may retain 20 cents for each new subscriber, or two renewals; but in place of this commission they may have, for each, one choice from the list of plants above, or from the list below, if five or more may be sent to one address, in which case they will be sent by express, prepaid, viz.

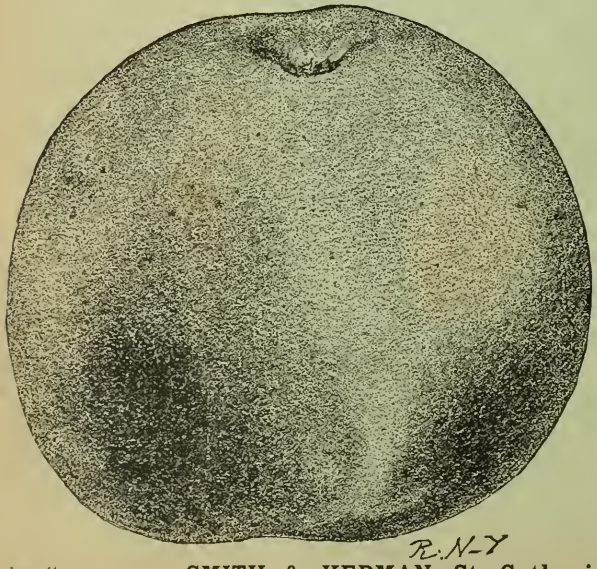
IX. **Princess Louise Apple Tree.** 5 to 6 feet high. X. **Yellow Transparent Apple Tree,** 5 to 6 feet high. XI. **Catalpa Speciosa Tree,** 5 to 6 feet high. XII. **Deutzia Crenata,** 3 feet high, a fine ornamental shrub. XIII. **Niagara Grape Vine,** 2 years, first class. The most productive of White Grapes. XIV. **Mill's Grape Vine,** 2 years, first-class. XV. **Saunder's New Black Currant.**

Outfits for canvassing, including sample copies, posters, envelopes, etc., will be sent **FREE** on application. Address

L. WOOLVERTON,

Secretary of the Ontario Fruit Growers' Association, Grimsby, Ont.

The Dominion Nurseries, St Catharines, Ont.



Is the headquarters of the new dessert apple PRINCESS LOUISE, which, in addition to all its former prizes, medals and recommends, took the first prize as the best Canadian seedling dessert apple at the late Dominion Fruit Growers' Association in Ottawa.

Also, headquarters for the Pearl Gooseberry, Saunders' New Black Currant, Niagara Grape, and all other kinds of Trees, Vines, Shrubs and Plants We deal directly with Planters, and guarantee satisfaction. If you intend planting anything in the nursery line send us a list of your wants and get our prices before giving your orders Catalogue and price list sent free upon application.

Small trees, plants and vines mailed to all parts of the Dominion. Address

Jan. 4t. SMITH & KERMAN, St. Catharines, Ont.

The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

THE FRUIT GROWERS ASSOCIATION OF ONTARIO.

Published at Toronto · Office Address—Grimsby, Ont.

Price $1.00 per annum (Including Membership, Annual Report and Share in Plant Distribution). Single Copy 10 cts.

STARVING ORCHARDS

AND HOW TO FEED THEM!!

Read the March number "Canadian Horticulturist," pages 67 and 69; April number, page 114; February number, page 61, and remember

As Poor Richard says
"Always taking out of the meal tub and never putting in soon comes to the bottom."

CORRESPONDENCE SOLICITED. Glad to give or get you any Special Fertilizers, or give or get you any information on these or kindred subjects. I quote you in 100 lb. lots, but for Clubs or quantities I can make special quotations delivered at your station.

It is not necessary to buy large quantities, try a bag or two, try generously and carefully and watch results.

Nitrate of Soda - - $3.35 per 100 lbs.
Sulphate of Ammonia - 4.25 "

Used as a top dressing, or dissolve in water and apply in that way, both very valuable.

Potash Salts - - - $1.50 per 100 lbs. To get good crops this is indispensible. *Important point*—besides being a *grand* fertilizer, this is death to *Cut Worms or Wire Worms.*

Blood and Bone Mixture - $1.50 per 100 lbs.
Dried Blood - - - - 2.50 "

Land Plaster, Superphosphates, Bone, Meal and Coarse; Sulphate of Copper, Tobacco, etc., special quotations for these; also, **Oil Cake, Linseed and Cotton Seed, Drain Tiles, etc., etc.**

ALFRED BOYD,

No. 1 Wellington St. East,

Telephone No. 2323. TORONTO.

NOTE.—**Lavender!** If any readers of the "CANADIAN HORTICULTURIST" have had experience in growing Lavender, I should much like to hear from them especially as to how it stands our Canadian winter?

THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 5.

THE Larue Apple, kn[illegible]ed Pound and as the xter, is a magnificent, large, red apple. very showy and well adapted to be placed on the market as fancy stock. Did it possess the superior quality of the Spy or the King, no apple that we know of would compare with it for market purposes during the months of December and January. Samples of it have several times been sent in to us and all were remarkable for both size and beauty, quite excelling the most handsome specimens of the King that we have ever seen.

The Larue was first introduced to public notice by Mr. D. Nicol, of Cataraqui, Director of our Association for Division No. 3, and the history of it was given by him on page 156 of Vol. 12.

He says that at first he gave it the name of Baxter, after an old gentleman who was peddling these apples in Brockville in 1855 at 5 cents each, and who, in reply to his inquiries, told him that the tree from which they were picked was growing near Mr. LaRue's mills, about 13 miles west of Brockville. Mr. Nicol having a nursery near that town, secured some scions of it and propagated about fifty trees under the name Baxter, and these were first of the kind ever propagated in Canada.

On visiting Mr. Billa LaRue, in whose orchard these apples grew, he was informed by that gentleman that the tree sprang from the seed brought by him from France in the year 1813. Mr. LaRue, therefore, not Mr. Baxter, is properly entitled to give his name to the apple, and, in the opinion of Mr. Nicol, it should henceforth be so called.

Mr. Nicol has twenty trees of this variety in his orchard. They are vigorous growers, without the least sign of tenderness, and yield annually a profitable crop of fruit. Although the Larue is by no means equal to the Spy in quality, he finds that it sells more readily in the Kingston market, and at a higher price, than any other apple that he grows. Indeed, he claims that no variety of the same season, that is also hardy enough to be grown in the latitude of Kingston, can nearly equal it for profit.

In a recent lettter Mr. Nichol writes as follows: As regards the Larue apple, it is not well adapted for starvation culture. It is only on good deep soil, kept fairly rich by frequent manuring, that it can be grown to perfection. That much may, of course, be said of all apples, but it is particularly so with this kind. The tree grows large and is a rank feeder; hence, needs more room than most other kinds. With good cultivation the Larue is a profitable apple, but whoever would plant an orchard on poor land to be poorly fed should not include it in his selection, because it would prove less profitable than some of the small-fruited kinds.

Well grown fruit of the Larue is generally at its best state in December and January, but when plucked early and stored in a cool place, it keeps well until March, and this year, on the 15th of April, small lots in fine condition were seen in several Kingston shop windows and the market. I used to consider the Larue a fall apple, but now I am inclined to designate it a winter apple.

FRUIT GROWING AT BARRIE.

IT is a far more agreeable task to record success either in fruit growing or any other enterprise, than failure; still, in the interest of progress, and improvement, our experience in one is perhaps as useful as in the other.

It need not be a matter of surprise that any individual who may embark in an undertaking, in which he has had no previous experience, should fail to succeed; indeed, it would be more surprising if, in a calling in which there is so much to be learned, and, depending on success for a living, he should escape failure. In my own case, I have had more of the latter than the former; but I think I may truthfully say, that had I known as much before I commenced as I did when I finished, the result would have been very different.

My first error was in the selection of a soil on which to plant; in this, following the recommendation of all writers on the subject, I was particularly desirous of having a soil that did not require draining; I succeeded in that, and succeeded too well, for although the soil was a nice sandy loam, the subsoil of about half of it was pure gravel, and the other half pure sand; consequently, in a dry season, both plants and trees suffered severely. My opinion is that vegetation draws nearly as much of its moisture from the subsoil by capillary attrac-

tion, as from the rains and dews on the surface ; therefore, if the subsoil is not retentive, vegetation must suffer during drought ; and there are very few years in which we have not, at one time or other, a period of dry weather ; then, if trees do not have time to fully recover from such visitations before winter sets in, they are ill-prepared to withstand the effects of severe cold ; and therefore many of them are lost that might, under other conditions, or with a more retentive subsoil, have escaped injury altogether.

In choice of varieties of apples, I was equally unfortunate ; here, again, I followed the recommendations of fruit growers as met with in magazines, reports of horticultural societies, etc. ; but at that time very little was said about the varieties recommended being suitable or otherwise for cold climates ; I therefore selected as my four principal varieties, Rhode Island Greening, Baldwin, Roxburgh Russet and Northern Spy, which all proved failures on my ground, causing great loss and disappointment. These are all winter apples, the very kind that should be avoided by northern growers, because the trees do not ripen their wood early enough to stand severe frosts, and I perhaps might add, they have no time to recover that strength that has been severely taxed by maturing a crop, before winter sets in ; they are, therefore, more tender than fall and summer varieties.

The Wagener was a complete failure with me ; I planted thirty of them one spring and they grew finely through the summer, but the following spring found them all dead ; that variety seemed to succeed with one of my neighbors who had a clay soil, and the Gravenstein succeeded well with another on a stiff, cold, wet soil, while on my light soil I could not get them to live.

Although I failed with a good many varieties, I had some success : the Red Astrachan, Duchess, Alexander, Hastings and Wealthy did well ; Red Astrachan and Hastings were the most vigorous growers, but were only just commencing to bear fairly after nine years' growth ; the Alexanders produced fine specimens of fruit, but few of them, and the Duchess and Wealthy bore such heavy crops, they had to be thinned out, or they would have broken down the trees, commencing to bear at three years from planting.

My first planting consisted of about three hundred trees, and among them were sixteen Wealthy ; as soon as they commenced bearing, and ever since, the produce of those sixteen Wealthys exceeded the total of all that were living of those three hundred ; the Duchess were not planted at the same time, or they would have given a different result.

I had a very similar experience with currants, of which I planted about three hundred bushes, part red and part white ; the red were bought as Red Dutch, and Cherry, but amongst them came, by some mistake, half a dozen of a kind that proved more profitable than either, for in course of time these half a dozen produced nearly as much fruit as the other survivors of the three hundred first planted. The reason was that all, except that half dozen, were so infested with the borer, that those that were not killed outright were sadly crippled, and were

growing smaller every year instead of larger, while the favored few were unmolested and the bushes had grown to a very large size. I feel interested to know the name of this variety that defies the borer; the fruit could not be distinguished from that of the finest of the Red Dutch, but the habit of growth and the color of the bark of the mature wood, and also of the leaves when just opened out, could be noticed as not the same; the bark was smoother and somewhat darker, but the greatest difference was in the habit of growth. [Possibly the Victoria. —ED.] The Red Dutch and Cherry incline to send up shoots straight upwards like a poplar, but the other variety grows with crooks and elbows, frequently tending downwards, often touching the ground and there sending out roots, and hus several of my bushes had from three to six independent roots, which accounts in some measure for their large size. I would never again plant white currants for market, as there is no demand for them.

I realized two or three times as much from every bush of Houghton's Seedling gooseberry as I did from Downing, and double the crop from every row of Philadelphia raspberries as from Mammoth Cluster.

It is not to be expected that, in the latitude of Barrie, grapes can be grown profitably in competition with the more favored parts of the province; still I planted quite a few varieties and succeeded in ripening them oftener than I failed. My favorite variety was Delaware, which I found to be the hardiest, earliest and most productive of any I have tried; perhaps I should except Moore's Early, as being earlier, but it was too shy of bearing to be profitable. It may surprise a good many that I should class Delaware as being more productive than Concord, but it was so with me; I got more pounds of grapes on an average from every vine of that variety, than from Concord of the same age and planted at the same time, and they commanded a better price, and then, though they may not color earlier than the Concord, they ripen earlier—for they are ripe as soon as colored—which the Concord are not.

I found Rogers' Nos. 9 and 15 very good flavored and very fine berries, but more inclined to grow wood than grapes. Salem is very similar to No. 9 in flavor and a better bearer, but too late for Barrie.

The flavors of some varieties differ very much in different seasons; the Delaware was always good, but I have known Rogers' No. 15 to be watery, flavorless and undoubtedly inferior to Concord; and I have known a season when Clinton was my choice of all the varieties for eating, but this only happened once in ten years. I have noticed, also, that the variety that ripens earliest one year is not sure to do so the next, a circumstrnce which I find it difficult to account for.

I only grew two varieties of plums, viz., Washington and Lombard. I presume the Washingtons will be living and in good health, long after the Lombards planted at the same time are dead and gone, for they are not attacked with the black knot to anything like the same extent; but for all that, I think the Lombards will have repaid their first cost and returned a better interest on the investment both of money and labor, than the Washingtons will do if they live twice as long.

Plums have done better with me than apples, they more than paid their first cost before I sold my farm, which was far from being the case with apples; still I lost quite a number of them through over-bearing in a dry season,—one of the results of a too porous subsoil.

In this latitude grape vines should never be left uncovered in the winter; my practice was to support them by movable frames about two feet or less from the ground, and on the approach of winter these frames were removed and the vines falling to the ground were covered with snow. This plan I consider good, for in addition to easy protection in the winter, the foliage shaded the ground in summer and kept it moist.

In proof of the necessity for winter protection, I have frequently noticed that where any part of a cane was exposed above the snow line, not a single bud would start from the exposed portion; but the wood not being killed, the ends of such canes, which were covered, would start buds and grow fruit just as though the whole cane had been covered.

My rows of trees ran north and south, and my small fruits—such as gooseberries, currants and raspberries—were planted in the same rows between the trees. This arrangement may have robbed the trees somewhat, but I found it very useful for the strawberry plants, for, forming as they did a wind-break every twenty-four feet, they kept the snow from blowing off, and the next summer's crop always showed plainly the benefit of this protection, as compared with ground not so protected; so that I have frequently said that it would have paid me to grow gooseberry bushes, supposing they never bore any fruit.

In conclusion, I am quite satisfied that apples and other fruits can be grown with success in the County of Simcoe, more easily than in a large part of the province further to the south; for there is a broad ridge of land between Barrie and Toronto and extending west and south-west till it reaches Stratford, and how much further I cannot say, that is from two hundred to four hundred feet more above sea level than is Lake Simcoe, and has consequently a more rigorous climate. But I think it advisable in the north to grow summer and fall apples only, as most winter varieties are tender, and then a fall apple becomes almost a winter apple as grown in the north. I have myself kept the Wealthy in good condition until spring, although it is only rated as a fall variety; but I must confess that what I have done in this respect one year, I could not be sure of doing the next, and whether this was owing to the particular season, or to the time of gathering, I am unable to say.

Toronto, 28th March, 1891. A. HOOD.

GOOSEBERRY MILDEW.—Mr. A. Morton, of Brampton, has experimented with ammoniacal Paris green for gooseberry mildew, and has found it quite effective. He dissolves one-half teaspoonful of Paris green in ammonia mixes in five gallons of water, and sprays it upon the bushes.

THE STARLING.

SIR,—I am sending you by this mail a copy of the Bath *Chronicle* newspaper, dated 18th Dec., 1890, which contains an article on a subject that I think may prove of some interest to the members of your Association—I refer to that on page 6, the subject being a bird called the starling, very common all over Europe. I have no doubt it would prove a valuable aid to farmers and gardeners on this side of the Atlantic, andI would suggest that a few of these useful birds should be imported during the coming spring and turned loose in our gardens and fields. Possibly your Association might feel disposed to take the initiative in such an important matter by undertaking to procure a supply of these useful insect destroyers. You will observe that they differ in every respect from the sparrow, whose aid to horticulturists is of a very doubtful character. I can remember our garden in the suburbs of London being much frequented by it in flocks during the autumn and winter months. Being a hardy bird, I can see no reason why they should not be well adapted to all parts of Canada, and remain with us during the whole season. My observation leads me to suppose that this country is much in need of insectiverous birds, and quite as much in winter, as in summer. I shall be glad to see the subject inquired into by all interested in horticulture.

Yours truly,

E. D. ARNAUD, *Annapolis, N. S.*

Mr. T. McIlwraith, of Hamilton, one of the leading ornitholigists in Ontario, replies as follows:

SIR,—In reply to your letter regarding the European Starling, I may say that it is not found in this country except in captivity.

Throughout Europe it is very generally distributed, and breeds in large numbers in England, Ireland, Scotland and Wales. In Norway it is found as far north as Tromsö during the summer, and in Siberia it gets as high as 57° N. lat. At the approach of cold weather the birds travel southward, vast flocks spending the winter along the shores of the Mediterranean sea.

A very decided increase has been observed in the number of these birds lately, they being now common where twenty years ago they were not known at all. Their food consists chiefly of worms, slugs, small molluscs, flies, beetles, ticks and other insects, they are also known to take small fruit occasionally, and have been accused of destroying the eggs and young of other birds, chiefly those of the skylark. The latter habit, if true, is much to be regretted, but it has been so often disputed that it cannot be practised to any great extent. The nest is usually built in a hole in a tree or bank, and very often on a ledge under an overhanging rock near the sea. They are very social in their habits, being found in large flocks at all seasons of the year. In civilized life they rear their young among the interstices of the Gothic arcitecture of church spires and monuments of the large cities, and often create work for the tradesman by planting their untidy nest in places intended to carry off the rain from the roofs of the houses.

They do not rank high as song birds, but they make such a variety of noises, with so much spirit, and accompanied with so much amusing gesticulation, that they are looked upon with general favor. They have great powers of mimicry, and on this account are often kept as cage birds, when with careful teaching many of them become quite accomplished.

As to whether they could adapt themselves to the climate of Ontario, that is a matter which so far as I am aware has not yet been put to the test, but I think is well worth trying. They would have to go south during winter, but there is plenty of room for them, and they could choose winter quarters to suit themselves as others do.

The whole habits of this bird point to it as a true friend of the farmer and gardener, and if any of those who made such a mistake in introducing the English sparrow to Canada, will try the introduction of the starling it would, I think, be about the best compensation they could make for the evil done by the sparrow. We have an abundance of food for the birds in summer which we can well spare, and if a few are tried and they find out where to go in winter, I have no doubt but they will thrive and make a very desirable addition to the list of our feathered friends.

Cairnbrae, March 4, 1891.

WINTER PEARS FOR MARKET.

HE Anjou pear I regard as the queen of winter pears for the table. It possesses all the virtues of a perfect pear, being rich, vinous and melting, with keeping qualities not excelled by any pear of its season. It is large, of pleasing shape, fragrant, and when fully ripe of a warm straw color. Coming into market when all fall pears are gone, it may be kept from November until March. As a market fruit it is always in ready demand wherever known, and brings the highest price, $5 to $6 per bushel for fine selected fruit. The tree is hardy, vigor us, not subject to blight, does not overbear, and hence requires little thinning, while few inferior fruits are seen on the tree.

Anjou does well as a standard or a dwarf. It should be planted in well-prepared, rich, dry ground and kept under the best cultivation, enriching it every year alternately with a moderate dressing of well decomposed stable manure and hardwood ashes. A thin sprinkling of salt during winter is also beneficial. Pruning is very important to keep up the vigor and health of dwarf trees and also to prevent overbearing. Dwarf trees that have been maintained under proper cultivation, and have been properly pruned, may be seen producing excellent crops of fine fruit after a half century of existence. Most of the dwarf pear-orchards throughout Western New York are neglected in most, if not in all, the about requirements, and therefore their lease of life is short and unsatisfactory.

The Winter Nelis is one of the finest winter pears, and a great favorite in eastern markets. The fruit is of medium size, melting, and possesses a rich aromatic flavor. For a dessert pear in respect to size, color and quality it has no superior among winter varieties. Its season is from December to March.

Winter Nelis should be grown on pear stock, or double-worked on dwarf stock. White Doyenne being the best tree for double working. A slender grower, in order to obtain bearing trees within a few years, it should be top-grafted on good-sized vigorous trees. It often overbears, and requires thinning, otherwise the fruits prove inferior in size and quality. Indeed, too much stress cannot be laid upon the necessity of thinning, not only with pears, but with all other kinds of fruit.

FIG. 34.—ANJOU PEAR, AND SPECIMEN IN TISSUE PAPER FOR SHIPPING.

By all who have tasted the Josephine de Malines when well grown and ripened this will be pronounced one of the very best late-winter pears. The fruit is medium to large, the pink or salmon-stained white flesh, melting and of a delicious rose aroma. This succeeds either as a standard or dwarf. Its season is from January to April. Owing to its moderate, irregular growth, it is little propagated in nurseries, and on this account is not much disseminated.

Lawrence, largely grown in some sections of our State, is held in high esteem by those who prefer sweet pears. The fruit is medium to large, melting and of pleasant flavor. Its season is from December to January. The tree is a moderate grower and very productive.

Clairgeau is the largest and most attractive early winter pear in cultivation, and always commands the highest price. The fruit is very large, pyriform, yellow and red, with its red cheek usually very highly colored, nearly melting, and keeps till January, the tree being a good grower and an abundant bearer. This is a very valuable market pear.

I have thus briefly referred to the best winter market pears that have come under my observation. Others might be added, but none, all requisites considered, equal to those specified. This is applied to winter market pears solely.

The pear for market and the pear for the amateur are two different matters. And yet, while the list might be increased in the latter case, where quality is the main consideration, it would be, nevertheless, difficult to name any finer winter pears for the table than Clairgeau, Anjou, Winter Nelis and Josephine.—GEO. ELLWANGER, In *Popular Gardening*.

NOTE.—Some growers have tried exporting pears to the English market and made it profitable, especially with the Anjou, which is sufficiently firm to endure the long period of transit. Our engraving of the Anjou is taken from the pages of *Popular Gardening*, and well illustrates the method of wrapping pears in tissue paper for distant shipments. We tried exporting Bartletts last summer, but the result was a total failure, as this variety ripens too rapidly when confined in a close apartment

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PETERBORO' FRUIT GROWERS' ASSOCIATION.

THROUGH the instrumentality of Mr. E. B. Edwards, of Peterboro' a local Fruit Growers' Association has been established in that place in affiliation with us. There are over fifty members, all of whom are also members of the Ontario Association. In response to their request, Mr. A. McD. Allan and the writer attended the initial meeting, which was held at Peterboro' on Wednesday, March 25th. Although the number in attendance was not very large, yet all appeared to be very deeply interested in the subjects presented.

Mr. E. B. Edwards began the proceedings by reading a paper from Mr. Wade, of Brighton, on "Storing, sorting and shipping apples." He recommended the following as the best varieties for the English market, viz., Summer and Fall: Duchess, Alexander, Ribston, Wealthy and Snow, when clean; the latter when otherwise should never be shipped to the English market.

Among the winter apples, he recommended Greening, King, Ben Davis and others. In the discussion upon the paper, Mr. Allan said that he believed that the prevalance of the scab partly arises from the delapidated condition of our

orchards: orchards need cultivation and manure, and when brought into a vigorous condition by attention in these respects, it will be much more able to overcome fungi and insects. He noticed that Mr. Wade stated in his paper that he put his name on No. 2 but not on No. 3. Mr. Allan thought the time coming when he will not put his name on No. 2 unless in exceptional seasons like the present. It is only the best that pays, and it only pays to grow the best. To-day first class apples will sell in Toronto, without any trouble, at $5.00 per barrel; while the poor article is a drug even in this scarce season. Deep plowing must of course be avoided, yet it is necessary to keep the soil in such a condition that it can take in the manure and be open to the action of the sunlight. The whole ground of an orchard should be devoted to the fruit crop, and no second crop be attempted, unless the trees are very young.

The Ben Davis apple appears to be very popular with growers in the vicinity of Peterboro' and was very highly commended by some of them who were present at the meeting.

Mr. Stenson commended it very highly as a shipping apple. His custom was to keep it in a cool cellar until about the 20th of May, at which time it was at its best in quality. He had shipped it at that season into the English market where it brought the very top price, frequently netting him as high as $3.50 per barrel. Of course this was due to the fact that other apples were out of the market at that season. The Ben Davis, he said, was a very fine bearer and the trees very hardy; and, therefore, if it only possessed the requisite quality of fruit it would surpass any other variety for this section of the country.

Mr. Allan feared that the Ben Davis would not hold its place. There was a time when the Greening was unsaleable in the English market, but of late it has been speedily rising in value because of its excellent quality.

The Ontario was mentioned by some member present as being an excel lent bearer, the apple was of first quality and very saleable on account of its fine appearance. Mr. Allan said he believed that this apple would in time take the place of the Spy and the Wagener, the objects of the originator being to secure an apple possessing the high flavor of the Spy, and the early bearing of the Wagener. This has been largely accomplished, for the Ontario is as good a keeper as the Spy which it resembles in flesh and flavor, and it comes into bearing as early as the Wagener; it also possesses the tartness of the latter and even surpasses the former in shipping qualities.

The Russet apples were adversely criticised by several apple growers. Mr. Allan stated that they were no longer in demand as formerly. They were not asked for in the market so long as other varieties of better color could be had. He could not, therefore, advise extensive planting of either the Roxbury or the Golden Russet.

The varieties of pears grown about Peterboro' with success were also brought under discussion. Mr. Stenson has tried the Flemish Beauty with success, and off one tree, 14 years of age, he has harvested nine bushels of fruit. There

was one fault, however, with the Flemish Beauty, it will crack, and in some seasons it is badly cracked and blemished. He believed the Clapp's Favorite was the best pear for the section ; it is very productive, grows to a fine size and is entirely free from blemish.

In his address on "The Commercial Orchard," Mr. Allan gave the following list of apples as well adapted to the climate of Peterboro', viz., 1, Yellow Transparent, 2, Duchess, 3, Indian Rareripe (strong grower, a magnificent apple, somewhat the size and shape of the Spy), 4, Gravenstein, 5, Colvert, 6, Wealthy, 7, King, 8, Peewaukee, 9, Ontario, 10, Golden Russet. He said the only objection to the Wealthy is the danger of spotting. So far it grows comparatively clean, but being of the Fameuse type, there is danger that this fungus may come over it in the future. The Peewaukee is very valuable ; it is a hardy apple and very firm, and consequently suitable for distant shipment. The tree is an enormous bearer and possessed of a strong constitution.

Some samples of the Blenheim Orange of excellent size and appearance were presented upon the fruit table. Mr. Allan was asked his opinion regarding them. In reply he said that if this apple could be grown successfully in this vicinity, he would highly recommend it for orchard planting, for it commanded a very high price in the English market.

Mr. Allan's list of plums for the district of Peterboro included the following : Moore's Arctic, Lombard, Imperial Gage, McLaughlin, Weaver, Yellow Egg, German Prune, and Coe's Golden Drop ; and his list of grapes was Lady, Worden, Concord, Brighton, Delaware, Niagara, Moore's Diamond and Wilder.

Mr. Thomas Beall, of Lindsay, read a paper on "Underdraining the Orchard," which he emphasized as very important to success in apple culture. He advocated drains five feet deep in the fruit garden, the object being to place them down well out of reach of the roots of the trees. He believed that drains at that depth were more economical than if they were only half that depth, for their influence would be effective upon the land twenty-five feet each side.

We expect to receive from this Society at Peterboro' a full report of their meeting with the list of officers, and papers read, for insertion in our next annual report. The same courtesy will be extended to all local Fruit Growers' Associations who are affiliated with the Ontario Association.

To Make Carbonate of Copper.—Since this article is coming into such common use and it is not always easily procured, the following recipe for its preparation, given us by Prof. Saunders, of Ottawa, may be useful :

Dissolve separately in warm water one pound of sulphate of copper, and one and a quarter pounds of washing soda ; mix the two solutions when carbonate of copper will be precipitated ; then pour off water.

NITRATE OF SODA FOR SMALL FRUITS.

THERE is no question at all as to the great advantages to the fruit grower of having commercial fertilizers placed within his reach. Formerly, his plantations were limited by the supply of manure, and his only hope of enlargement was by increasing the number of his stock, thus compelling him to unite his two lines of industry. But now that the elements contained in barnyard manure can be obtained at a low price in the shape of commercial fertilizers, the fruit grower is only limited by the amount of his land and by his capital, for he can easily procure every needed element of fertility.

The three principle elements in barnyard manure are phosphoric acid, potash and nitrogen. These can be separately purchased, the first in the superphosphate or ground apatite rock, which is being quarried so extensively in the county of Renfrew, and sold at about $18 per ton ; the second in muriate of potash, or in wood ashes : and the third in sulphate of ammonia, or in nitrate of soda, the latter of which is now to be had at about $60 per ton.

Having some inquiries respecting the use of nitrate of soda, we will at present only speak of this substance. It is sometimes called Chili saltpetre, because it is imported in large quantities from Peru, in which country it is found in a crude state incrusting the soil of a desert. Its value in the garden, like that of other compounds of nitrogen, consists in its power to promote leaf growth, and consequently the general health and vigor of plants. Sulphate of ammonia has been largely used to furnish nitrogen, but of late nitrate of soda has been offered at such reasonable prices that it has displaced the former to a large extent. The application of from one to two hundred pounds per acre will give marked results and well repay the outlay.

One caution needs to be observed, and that is to apply nitrate of soda in the early part of the growing season, just when the plant most needs the stimulus, and when it will not be likely to be leached away before being taken up. Its value to the gardener has been so thoroughly proved by Mr. Joseph Harris, author of "Walks and Talks," that we quote the following from his writings :

"The effect of nitrate of soda on strawberries in the dry climate of the United States is very beneficial. It not only doubles or trebles the yield, but the strawberries are larger and handsomer, and conseqqently command a much higher price in market.

"No ordinary amount of manure will produce so great an effect, for the reason that the plants grow and form their fruit early in the season. The nitrate of soda furnishes the plants with nitric acid before the nitrogen of the manure can be converted into this essential ingredient of plant food.

"A few years ago, we published a statement in regard to the astonishing effect of a large dressing of nitrate of soda on an old strawberry bed. The bed

had been neglected and was full of grass and weeds. At that time we had never used nitrate of soda on strawberries and did not know but that it might injure them. The bed we allude to was so run out and worthless that we did not care whether the nitrate killed the plants or not. We gave the bed two or three heavy dressings, sown broadcast, early in the spring and a few weeks later. Instead of killing the plants, the nitrate made them grow so vigorously that with a little assistance from a sharp hoe and by pulling out the large weeds, the strawberries killed out nearly all the grass, and we had a remarkably fine crop of fruit. Since then we have used nitrate of soda and superphosphate on all our strawberry plantations, and find this dressing far more effective and economical than ordinary manure.

"Nitrate of soda is, at least, equally as good for raspberries as for strawberries. On currants, with clean cultivation, we have for several years raised large crops of fine fruit, with a top dressing of nitrate of soda alone, applied on each side of the rows early in the spring.

"On poorer land, it would be desirable to apply superphosphate and potash in the autumn, and plough or cultivate them in, and the following spring, and in fact every spring, give a dressing of nitrate of soda."

THE HAVERLAND, BUBACH AND WARFIELD STRAWBERRIES.

MONG the new strawberries *the Haverland* seems to receive general commendation as a cropper. The engraving is a sketch of it as grown at LaSalle, N. Y., and sketched in a recent issue of *Popular Gardening*. According to that journal it is a berry of which both originator and introducer may well be proud, for it is "enormous in foilage, enormous in number of runners and enormous in quantity of fruit." The Horticulturist of the Ohio Experiment Station, also commands the Haverland very highly. He says :

This variety is one of the most promising of recent introduction. It has been before the public but three years, yet it has become fairly established and now ranks high among the standard sorts. In its leading characteristics it resembles the Crescent, being vigorous in its growth and very prolific. It is not quite so early in ripening, but the berries are larger and finer in appearance. Scarcely an unfavorable report has been heard of this variety from any section of the country. It may not be equal to some other sorts for distant shipment, but for near market it is unsurpassed. Fruit growers who have not planted the Haverland need have no fear in doing so, as it seldom happens that a variety fails in a particular locality when it succeeds over a wide area.

The *Bubach* has been favorably mentioned several times in this journal on account of its uniformly large size, and its ability to withstand dry seasons. Prof. Green, of the Ohio Experiment Station, speaks of it as follows :—

This variety is remarkable for its healthy dark green foliage, being distinct from all other varieties in color of leaf and general appearance of plant. The berries are large, somewhat cocks-combed, rather soft and not extra in quality. In productiveness the Bubach ranks a little below Crescent and Haverland, but the berries are larger than of either of the kinds named. Many growers who dispose of their crop in near markets place this variety at the head of the list,

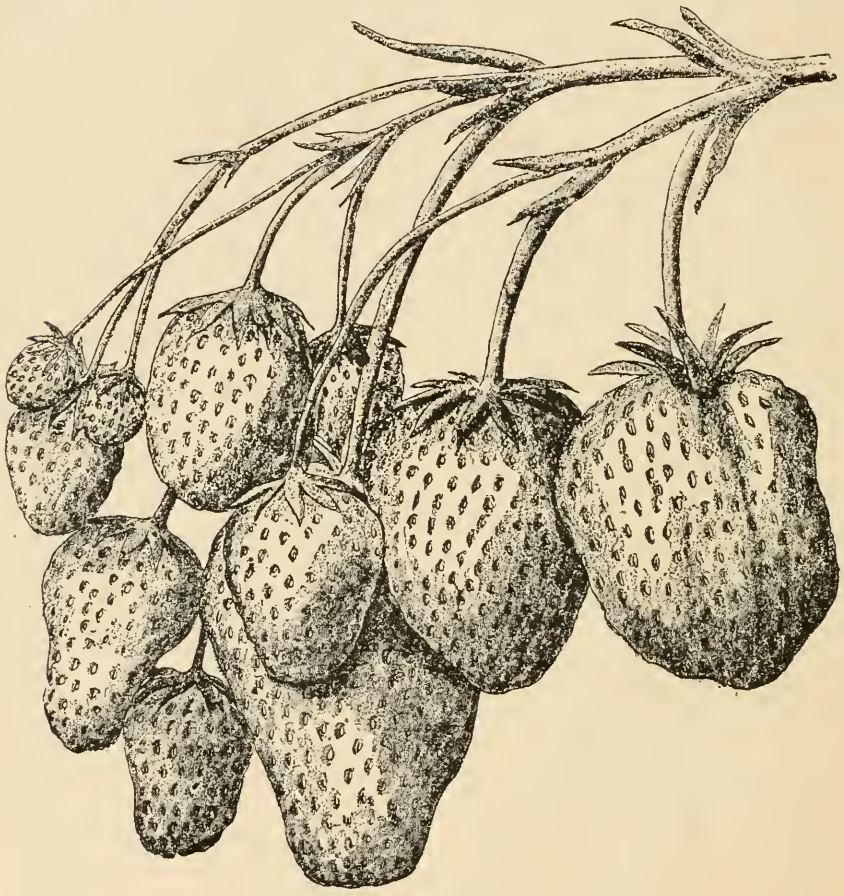

FIG. 35—CLUSTER OF THE HAVERLAND STRAWBERRY.

but experience with it at the Station shows that the berries are not uniformly large, rendering sorting necessary. It must be classed with what are known as "show berries," in which class it takes high rank. As regards its value as a market berry, much depends upon the demands of the particular market for which it is designed. Where extra fine berries command a price according to the grade, the Bubach will prove one of the most profitable, but in less discriminating markets it will fall considerably below Crescent and Haverland.

Plants of this variety were distributed a year ago to members of our Association, from whom we shall soon receive reliable reports of its suitability to our province.

The *Warfield* is another berry which appears to stand testing. Its great merit seems to be its firmness, making it a first-class berry for distant shipment. Those who value the old Wilson will find in this many of the same characteristics, as firmness, quality and rich dark color. Prof. Green says of it :—

The most marked characteristic of this variety is its shipping qualities, ranking the highest of those named in this particular. The plants are vigorous and productive, berries medium in size and of fair quality. Those who grow for near market only will find this variety less satisfactory than the above named, except when it is desirable to hold the berries some time after being picked. It has a place, which it fills very satisfactorily, but for near market it is not the equal of either of the varieties named above.

These three varieties are imperfect in flower, but no perfect flowered kinds equal them in productiveness. Of course planters will set, say, about one row in five of Jessie, Sharpless, or some other good staminate variety, for the purpose of furnishing them with pollen.

FURTHER POINTS ON SPRAYING WITH COPPER SOLUTIONS.

OW that the time has arrived for treating our vines and trees with the copper mixtures, a few additional points may be helpful. Their usefulness for grape mildew has been fully proved by the testimony of many vineyardists, who state that they have thereby made a saving of from 50 to 90 per cent., and, for the apple scab, their effectiveness has been fully demonstrated at several Experiment Stations.

Nor is this all; an evident result of this treatment is that bright healthy foliage, without which it is impossible to mature fine fruit, or to produce that vigor in the tree or plant which is necessary for fruitfulness.

We notice considerable variance in the modes of treatment prescribed, for the reason, no doubt, that the work is still in the experimental stage. Mr. Galloway, Chief of the Division of Vegetable Pomology of the United States, advises ammoniacal carbonate of copper as the best remedy for both the downy and the powdery mildew. In the case of the former, he advises the first application about the time the berries are well formed, and a repetition every twelve or fifteen days, or oftener in rainy weather, until the berries begin to color; the latter he would treat the same, with this exception, that he would not begin until the first sign of the trouble is visible. For the treatment which he recommends for the apple scab, we refer our readers to his own letter on the apple scab.

To give our readers some idea of the true value of the chemicals required, we quote the following wholesale prices:—

Sulphate of copper (in crystals)	per lb.	6 cts.
Copper carbonate	"	40 "
Aqua ammonia, 26°	"	8 "
Ammonia carbonate	"	11 "

and based upon these values, the vineyardist who is provided with a force pump, can treat his vineyard for one-third cent per vine each application, and with sulphate of copper for one-half of that sum. The Bordeaux mixture will cost about one-half cent per vine for each application.

The ammoniacal solution of carbonate of copper can be prepared in an easier way than that already given, by using pulverized ammonia carbonate instead of liquid ammonia, thus: Mix thoroughly six ounces pulverized ammonia carbonate and one ounce of copper carbonate, keep it in an air-tight vessel, and when ready for use, dissolve in ten gallons of water.

Convenient measures for copper carbonate are also suggested by Mr. Galloway. They are made by the use of a baking powder tin, first weighing the tin, then adding, say, an ounce of the chemical and marking the place. In the same way, two ounce and five ounce measures can be prepared.

TREATMENT OF APPLE SCAB.

APPLE scab can now be prevented so easily and cheaply that there is no longer any excuse for the injury it occasions. We first successfully treated this disease three years ago and since that time our methods of work have been considerably improved. Briefly the treatment we would now recommend is as follows:

When the fruit is about the size of a pea, spray the trees thoroughly with a solution made by dissolving five ounces of carbonate of copper in one and one-half pints of aqua ammonia having a strength of 26°. The copper may be dissolved in an ordinary water pail. When completely dissolved pour the liquid into a barrel, and then fill the latter with water. A barrel of the solution made in this way will cost about thirty-five cents, and it will be sufficient to treat fifteen large trees once. Make a second spraying twelve or fifteen days after the first, and the third two weeks later. If an ordinary season, three sprayings will be sufficient, but if rainy it will be necessary to make one or two more. In applying the solution it is of the highest importance that the leaves and fruit be thoroughly covered, and this is only made possible by using a good strong force pump, provided with a suitable spraying nozzle. Such a machine need not cost over $12 or $15, and where one has a larger orchard this amount will be easily saved in a short time.

The carbonate of copper is sold at retail for 40 cts. to 75 cts. a pound. It

can be made at home, however, much cheaper, the usual method of preparing it being as follows:—

Dissolve three pounds of sulphate of copper or bluestone in five or six gallons of hot water. In another vessel dissolve three and one-half pounds of sal soda in six gallons of hot water. When cool pour the soda solution into the copper liquid, stirring constantly the while. Allow the solution to stand twenty-four hours, then siphon or pour off the clear liquid, taking care not to disturb the sediment any more than is necessary. After the clear liquid has been removed, add water and stir up the sediment. Let the liquid stand another day then draw off the clear liquid again. The sediment, which is carbonate of copper, may then be dried and used as already described.

Department of Agriculture,
Washington, D.C.

B. T. GALLOWAY.

THE MOUNTAIN BEET APPLE.

SIR,—I note Dr. Hoskins' remarks about the *Mountain Beet Apple* in April number of the HORTICULTURIST. I have had some twelve years' experience with this variety. The tree is quite hardy and bears heavily every alternate year. The fruit is above medium, roundish, slightly oblong, symmetrical; skin rather thick, entirely covered with deep red, but never any bloom, as many dark red apples have. Flesh fine, stained through to the core a strawberry color. It is, as Dr. Hoskins says, a "a great curiosity."

The Mountain Beet is a very pleasant apple to eat, being crisp, spicy and sub-acid; an excellent cooking apple. It is inclined to spot some, but not as badly as Fameuse. With the members of my own family it is a great favorite in the fall. Season, October. A very good apple for home use, in this province, but I would not recommend it for market.

Montreal, P. Q.

R. W. SHEPHERD, JR.

POOR STOCK quickly gluts any market, but first class and fancy fruit is always in good demand at high prices. A writer in the *Fruit Grower's Journal* very sensibly writes:

From my long experience as a wholesale dealer I am satisfied that if shippers would keep all the low grade goods at home the price of their good stock would be enough better to more than pay the difference.

There should be a good evaporator in operation in every fruit district where all inferior fruit could be utilized.

BEST SIX GRAPES FOR SOUTHERN ONTARIO.—The following are recommended by W. C. Barry, of Rochester, for that locality, which also corresponds with Southern Ontario: Lady, Niagara, Concord, Worden, Gaertner and Barry.

FRUIT TREE FERTILIZER.

SIR,—Would you kindly give an early answer in the CANADIAN HORTICULTURIST, respecting the recipe for a complete fertilizer as issued in the March number. What could you substitute for the forty bushels of wood ashes, as such an article cannot be obtained in or near Toronto.

W. H. PARKER, *Mimico*,

SIR,—You will kindly allow me to correct the printers errors and to make an additional note in reference to the fruit fertilizer given by you in the February issue. I would recommend the following as an application per acre for fruits :

40 bushels of fresh hardwood ashes, @ 10c.	$4 00
100 pounds of bone or bone black, @ 1½c.	1 50
100 pounds of nitrate of soda, or 75 " of sulphate of ammonia	3 50
	$9 00

In place of the wood ashes, potash salts, such as the muriate or sulphate can be used, which will cost from three to four and a half cents per lb. of high quality (52% potash). Use about 150 lbs. of the best potash salt, which, however, will cost about $6, and will give a little more than half the potash contained in the forty bushels of ashes. In case ashes are not available it would probably pay best to deal directly with a fertilizer manufacturer and buy his potash or fruit fertilizer ready mixed.

I make the change from sulphate of ammonia to nitrate of soda because I find that the price of the nitrate of soda varies with different dealers but very little, from three to three and a half cents a pound ; whereas, for some unknown reason, we have had sulphate of ammonia quoted to us from 3¼ to 9 cents a pound.

In buying a potash fertilizer, such as the muriate or sulphate, the buyer should carefully note the amount of potash guaranteed, as it may vary from 50% to 10%. As a bushel of ashes contains from three to four pounds of potash he can readily make his comparison in value.

Ontario Agricultural College, Guelph, C. C. JAMES.

POWDERY MILDEW OF THE GRAPE.—Prof. Scribner, in his new work on Fungus Diseases, recommends sulphur as the only remedy needed. He says : "Flowers of sulphur dusted on the vines (or in hot climates, simply spread over the ground beneath them), serves effectually to destroy the Powdery Mildew. No other treatment is necessary to protect the vines from this parasite. In regions where this fungus is most injurious, it is the custom of vineyardists to make at least three applications ; first, when the young shoots are about four inches long ; second, when the vines are in bloom ; and third, just before the berries begin to color."

COMMERCIAL FERTILIZERS COMPARED WITH STABLE MANURE.

AT a meeting of the Boston Market Gardeners' Association on the 27th of December last, Mr. Geo. W. Bowker read a paper on "Manures for the Vegetable Garden," and in the course of the discussion following he very strongly advocated the liberal use of commercial fertilizers. Mr. Bowker, says the *American Garden*, would not have it understood that he would have market gardeners dispense with stable manure altogether. He would have them use only enough stable manure to keep up the vegetable tilth, and supplement it with concentrated fertilizers. He would advocate that course on the score of economy, for what need is there in carting manure eight or ten miles out of the cities to get only twenty-five pounds of actual plant food to the ton! For, according to Prof. Goessman, that is all the plant food there is in two thousand pounds of stable manure, the remainnig 1,975 pounds being silicates and organic matter that most market gardens contain.

The market gardener near our large cities, working high-priced land, is compelled to use some stable manure, but upon the cheaper interior land a part of the garden can remain in grass, and from time to time this grass land can be turned over, thus furnishing the same kind of organic matter that is contained in stable manure. The additional fertility required can be obtained from fertilizers. To the market gardener who had, for the past fifteen or twenty years, been applying stable manure at the rate of fifteen cords per acre, he would say to him, stop, and instead of stable manure use commercial fertilizer and nothing else for five years at least. That would be true economy, for the application of two thousand pounds of fertilizer, which is about the right ratio for an acre of land, would not cost nearly so much as fifteen cords of manure.

The question of the cost of manure eight miles from Boston was discussed by many speakers, and the price agreed upon by most of them was seven dollars per cord.

Mr. Derby, of Revere, struck the key-note to the situation on his remarks. He said, circumstances alters cases, different soils require different treatment. With him, upon his heavy, clayey soil, fall manuring not only improved the texture of the soil, but permitted it to dry out earlier in the spring.

Mr. Frost, of Belmont, related an interesting experiment with fertilizers on celery. Celery, where fertilizer was used, was far ahead of stable manure, as he experimented both ways. Mr. Frost's experience was doubly interesting, from the fact that he was formerly a skeptic on the use of commercial fertilizers on a market garden. He formerly said that there was nothing equal to stable manure. He further remarked that the market gardens of Arlington and Belmont were now manure sick, so much so that many of our valuable crops could not be grown.

It was out the question to grow sweet melons, cauliflowers, tomatoes, bunch turnips ; and even celery, which was always supposed to do well on old, rich soils, now badly blighted there.

Mr. Stone, of Waterton, spoke of his success in using fertilizers for ten consecutive years and the soil was steadily improving.

Mr. King, of Peabody, used fertilizers on hoed crops for six years, and the last year gave the best crop. The piece is now laid down to grass, and it gives him his best mowing.

PROVINCIAL EXPERIMENT STATIONS.

THE importance of having a Horticultural Experiment Station in southern Ontario, was debated upon at our Winter Meeting at Hamilton and a special committe appointed to prepare a scheme and bring it before the Ontario Government.

The necessity of such a Station is obvious from the fact that the climatic conditions, both at Ottawa and Guelph, are unfavorable for the testing of tender varieties of fruits and it is very important that intending planters should have some more reliable guide with regard to the value of new fruits than the recommendations of interested parties.

A very economical plan would be one patterned after that which succeeds so well in Michigan, where a branch experiment station, fruit under the Agricultural College, has been established in connection with the farm of Mr. T. T. Lyon, President of the Michigan Horticultural Society. A tract of land, adjoining his fruit farm, has been purchased by the government and placed under his care ; and in this way, the public receive the benefit of Mr. Lyon's lifelong experience in testing varieties on his farm, as well as of those fresh experiments carried on upon the new experimental grounds. We read the bulletins prepared by Mr. Lyon, with special interest, because they are prepared by a practical fruit grower, and, therefore, they are in touch with the work of practical men ; a statement which cannot be made regarding all horticultural bulletins issued by experiment stations.

The Committee appointed for the purpose, interviewed the Minister of Agriculture, at his office on the 21st of April, and proposed the purchase of twenty five acres of choice land somewhere in the best fruit growing district of southern Ontario. They estimated the outlay for land, buildings, trees, plants, horses, and implements at about $10.000; and the annual expenses at about $3000, which in time would be nearly covered by the sale of produce. The Hon. Mr. Dryden viewed the scheme with favor, only questioning whether the people themselves had become sufficiently aroused to its importance.

The members of our association, scattered everywhere throughout the Province, can aid their officers very greatly in furthering this enterprise, by talking about it with their neighbors, and with their parliamentary representatives ; and thus, by all proper means, proving that there is a real need of such a station.

The Kitchen Garden.

CELERY AND HOW TO GROW IT.

"WELL begun—half done!" Good plants are indispensable to a good beginning. To insure having them just when soil, season and hands are ready, and the weather favorable, they should be grown at home—a task by no means difficult.

To grow the plants, procure good seed from a reliable source. As early in spring as the condition of the ground will permit, prepare a smooth, mellow seed-bed in any convenient spot where the soil is rich and reasonably free from weed seeds. Mineral manures make firm, stiff plants; hence wood ashes and phosphatic fertilizers, applied broadcast and thoroughly raked in, are preferable to even the best compost with its probable weed seed supply.

Mark out drills not more than one-half inch deep, and not less than ten inches apart, and scatter the seed in them evenly, like sowing carrots. *Do not cover*, but walk over each row, putting the heel of one foot just ahead of the toe of the other, thus stepping upon every inch of row with his full weight, and pressing the seed firmly into the soil. The natural moisture of the ground insures prompt germination under this treatment; and the application of a light mulch of litter, practised by some, though perhaps beneficial in a few cases, yet, as a rule, proves superfluous. Allow no weeds to grow, and keep the soil well pulverized between the rows *all the time*, loose soil being a perfect mulch. Repeated light dressings of nitrate of soda are of wonderful help. Thin where too thick, leaving about fifty plants to the rod. If tops grow rank, shear them back once or twice to make stocky plants.

I practise sowing a few rows of celery in my vegetable garden at the same time and in the same manner that I sow my early vegetables; and there, all receive the same treatment. The rows are frequently cultivated with either Ruhlman's wheel hoe or Gregory's finger weeder, and weeded by hand as often as required. Thus I raise a row of celery plants about as cheaply as one of cabbage plants or radishes. The same length of row produces nearly twice as many celery plants as it would cabbage plants, and the former are worth twice as much money.

There are few localities where a limited number of good celery plants would not find ready sale at 50 cents per hundred. This pays exceedingly well, and often more than the production of marketable celery. Hence these minute directions.

Growing the crop from good plants is comparatively easy. If not grown at

home, I would rather buy them of a skilful grower near by, than risk the uncertainties of long transportation by express.

Between July 1st, perhaps even earlier for very early use, and August 1st (later at the south) the plants are set in rows three or four feet apart for dwarf, four or five feet for tall varieties, and six inches apart in the row. A rich piece of land, just cleared from any early garden crop, is usually in fit condition for celery without manure, except perhaps a dressing of wood ashes and phosphates scattered over the rows and mixed thoroughly with the soil before setting plants. If the soil is not rich enough, a deep furrow may be plowed out for each row, half filled with fine compost and this well mixed with the soil in the bottom of furrow. Coarse strawy stuff is not wanted. Re-fill with soil, leaving a slight depression so as to make the surface of the piece somewhat undulating. Stretch a garden line along the row and set the plants, after shortening tops and taproot and dipping roots in water, in the usual manner, always pressing the soil firmly about the roots. Select for this work a time when the soil is fairly moist —neither wet nor dry. In a dry time set after 4 p.m. and water plants freely after setting.

Now keep the path clean and the surface of the soil open and mellow close up to the plants at all times. The first step toward "blanching" is the "handling." Plow light furrows towards the rows, or draw loose soil up to them with the hoe. Gather all stalks of one plant together, hold them firmly with one hand, and with the other pack enough soil around it to keep the plant permanently in this upright position. More soil is then drawn up with the plow or hoe. For plants to be stored for winter, this "handling" is sufficient; but if intended for fall use, the crop has to undergo the blanching process. With plow and hoe bring the soil between the rows up to the plants, putting the finish on with the spade until only a few inches of the tops are visible. This is done from September to November, or from three to four weeks before the crop is wanted for market or home consumption.

The most popular way of storing for winter is by placing a row close together in narrow trenches, the tops even with surface of ground, and by covering with boards and litter to exclude light, rain and frost. Or the plants may be placed upright upon a layer of moist soil in a dark cellar. Various other methods are practiced in a small way Never handle while frozen.

The best varieties: The coarseness of the tall kinds has nearly driven them out of general cultivation. The dwarf sorts are good, but I know not one superior to Golden Heart (or Golden Dwarf), with its beautiful rich yellow heart, when blanched. White Plume is a so-called "self-blanching" sort, and, in theory, needs only "handling" without blanching. To bring out its best flavor, however, it requires the laborious "earthing up" or blanching process as much as any other.—T. GREINER, *in American Garden.*

KNAPSACK SPRAYER.

In reply to frequent inquiries respecting a portable sprayer for the garden and vineyard, we have pleasure in referring our readers to the advertising columns, where several excellent pumps are offered. The Field Force Pump Co., of Lockport, have kindly loaned us a cut of their new sprayer, which is on the same principle as the others, but differs in shape. The copper boiler holds about six gallons, and the air chamber above is so arranged that it keeps up the pressure even after the operator has stopped pumping. The nozzle used is the celebrated "Vermorel."

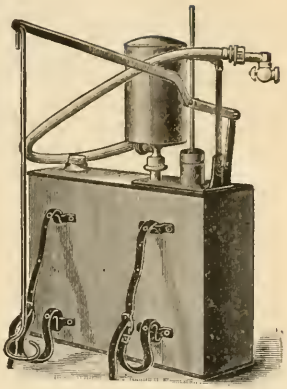

FIG. 36.—NEW KNAPSACK SPRAYER.

HOW TO GROW TOMATOES TO PERFECTION.

Mr. C. L. Allen, writes in the *American Agriculturist* as follows on this subject: Because the generous nature of the tomato yields bountifully with seemingly little care and attention, the general impression prevails that the plant requires but little attention. This is a sad mistake, for there is not a vegetable in the garden that is so gross a feeder, nor one that so readily pays for all the food and care given as the tomato. To grow it to the greatest perfection, the hills should be dug out to the depth of two and a half feet; at the bottom there should be a half bushel of well-rotted manure; above this let the soil be an equal mixture of loam and manure thoroughly mixed. The hills should be at least six feet apart. Let the situation be open, warm, airy. When the fruit begins to set, mulch with clean straw or very small brush. Under these conditions six plants will furnish sufficient tomatoes for a family of twelve persons. Whatever variety may be planted in this manner, the result will show specimens for size, smoothness, and esculent properties, unknown to the variety when grown in the ordinary manner.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

SITE UNSUITABLE FOR AN ORCHARD.—A correspondent in the Province of Quebec says he has about twenty acres in sod that has never been ploughed, it is in timber, but the trees, though large, are far apart, and are mostly elms, oaks and walnuts. The soil is first-class, but bare rock lies from 3 to 8 inches below the surface. He asks whether such a site would be fit for planting apple trees in the spring. Obviously to all experienced fruit growers, every condition mentioned appears to be unfavorable. Trees planted in sod will not thrive unless the land is kept thoroughly worked up with the spade, so far as the roots extend; a more expensive operation than ploughing. Far the best way is to have the land thoroughly worked up for a year or two before planting. Then, shade is sure to stunt a young orchard, and nothing will more certainly prevent it from bearing any fruit. The shallowness of the soil is a great hindrance to success, for apple trees in such a position suffer exceedingly from drouth in summer, and are seldom fruitful.

THE SORGHUM INDUSTRY IN CANADA.—It would seem that there is some hope of a really profitable line of industry being developed in raising sorghum in Ontario for the manufacture of molasses. Mr. C. W. Wellington, who hales from the Southern States, and understands the process, has been experimenting at Grimsby for some years with hardy varieties of sorghum, and is so encouraged that he is enlarging his works, and preparing to manufacture into molasses as much cane as the farmers here choose to grow. He showed us a letter from J. M. Rusk, Secretary of Agriculture, Washington, D. C., speaking highly of the quality of his syrup, and saying that he believed American capital could easily be secured for producing such an excellent article.

DISBUDDING THE PEACH.—Mr. O. Thomas, of Chatsworth, Eng., writes in the *Garden*, advocating this practice both for thinning fruit and wood. He thinks that if the tree could speak it would loudly reproach the gardener who allows it to expend its energy and strength in making growth of wood, or of fruit, which must be removed at a later stage. Disbudding, he says, should be done systematically, taking a tree at full bloom and rubbing off all weak looking blossoms and shoots, leaving about half the original number. In four or five days he goes over again, always taking care to have fruit buds left on the top side of the branches. Finally, when the fruit is set, he makes the final thinning, leaving only such as it is intended the tree shall carry to maturity. The same treatment is given the wood growth.

Few Canadian growers can find time for such work as this, for the outlay for going over an orchard of a thousand trees would be too great. Still, the hint may be of service to some.

APPLES FOR THE VICINITY OF MONTREAL.—Mr. R. Brodie, of Montreal, gives the following list as suited to that section, whether for home use or market:

Summer—Yellow Transparent, Red Astracan, Montreal Strawberry, Duchess of Oldenburgh.

Autumn—Peach, St Lawrence, Golden White, Alexander.

Early Winter—Fameuse, Winter St Lawrence, Wealthy, Bethel of Vermont, Utter's Red and Grime's Golden.

Late Winter—Golden and Roxbury Russet, Ben Davis and Belle de Boskoop.

A PAYING APPLE ORCHARD.—Mr. Whittier, of Farmington, Me, has an apple orchard of seventy acres, and five thousand trees, which has had his personal attention for many years. The land being heavy and much of it also rocky hillsides, he has been unable to work it, but, instead, has followed the plan of mulching heavily with grass, leaves, ferns, etc. He evaporates all No. 2 fruit, and as a result he can afford to make his No. 1 grade worth a fancy price. In 1889, it is stated that he received $3500 for his No. 1 stock, selling it in the Boston market in the spring at from $5.00 to $6.00 per barrel. Such instances show us the possibilities of apple culture.

THE ILLINOIS STATE HORTICULTURAL SOCIETY receives a grant from the Government of $3000 per annum. It furnishes in return an interesting report of some 400 pages, but we doubt if it covers as much ground in the interests of the fruit industry as the report of the Ontario Fruit Grower's Association whose grant is little more than half that amount.

ERRATA.—On page 6 for Mr. Perry, read Mr. Terry On page 67, for one hundred bushels of wheat, read fifty bushels of wheat.

Question Drawer.

GIRDLED TREES.

SIR,—The mice girdled some fine Northern Spy trees for me. Could you give me any advice about how to treat them. C. H. J., *Meaford.*

If the *inner* bark has not been closely eaten off, the trees may be saved by a little attention given before the hot sun has dried it up. The wound should be covered with some substance that will prevent evaporation. A good application, once mentioned in this Journal, is made as follows: Mix thoroughly and beat together stiff clay with half its quantity of cow manure. Apply this over the wound quite thickly, and fasten it in place by wrapping with an old cloth and tying with strings. If the inner bark is gone it will be as well to replant, unless the trees are valuable. In this case the only plan is to bridge over the wound with scions, in order to keep communication with the roots. The process is so clearly shown

FIG. 37. TREE COMPLETLY GIRDLED BY MICE.

FIG. 38. GIRDLED PORTION BRIDGED OVER WITH SCIONS.

in our illustrations that no farther explanation is necessary. Of course the scions should be young wood of the previous year's growth, and if these are beveled on the side next the tree, and inserted snugly under the bark above and below, success is possible, and the tree may in time wholly outgrow the injury.

LIQUID MANURE.

SIR,—I have a good supply of liquid manure during the season; soap suds and liquid manure percolating through the manure heap. I shall be very glad of some information as to the best mode of applying it to my grape vines, as well as time and quantity.

W. KAY, *Goderich.*

This question is answered pretty fully in the following from *Vick's Monthly:* Every garden ought to have its leach-barrel for the manufacture of liquid manure. Manure in the soil is good, but the application of it in a liquid form produces more satisfactory results. It is more immediate in its results, and none of it is wasted, as a good deal of that which is worked into the soil must be.

It is an easy matter to fit up a leach. Take any old barrel and set it on a

sloping platform. This platform should be about a foot high—high enough to allow slipping a pail under it to catch the liquid in. This platform should be larger than the bottom of the barrel, with cleats nailed on the side to prevent the liquid from running off. The front of it ought to be sloped, like an obtuse-angled letter V, with cleats fastened to it, but not coming quite together at the point. These conduct the manure to the opening left at the point, where it falls into the pail placed for its reception. The bottom of the barrel should be filled with stones, brick or pottery, to keep the manure from packing down solidly and clogging up the holes, which should be made for the escape of the liquid. On top of this drainage fill in with manure from the cow stables, and pound it down well. Add water slowly at first to allow it to get thoroughly soaked through before leaching begins. When you notice that it begins to trickle out at the bottom of the barrel, add it in greater quantities.

That which first runs off will be very strong. It will be about the color of thick coffee. Dilute it until it has an amber look. This will be quite strong enough for safety. Too strong a liquid manure is worse than none at all. When you use it apply close to the roots of the plants. It is too precious to be wasted by putting it where there are no roots to make use of it. Twice a week is often enough to apply it. This is the best of all fertilizers for pot plants.

GROWING DAHLIAS.

SIR,—I would be pleased to have some instructions about growing dahlias.

C. E. H, *Toronto.*

The tubers of the dahlia should be separated, leaving a small piece of stalk with each. In order to have them bloom early in the fall, these should be started in a hotbed, or in boxes or pots in the house, and toward the end of May it will be safe to plant them outside. The soil for the dahlia bed should be made very rich in order to secure the best results. A liberal watering during the dry weather will be of great benefit, and if a little liquid manure could be applied to the roots occasionally it would be of great benefit. Four feet is a good distance apart for planting.

KNOT-PROOF PLUMS.

SIR,—Are there any varieties of plums that are free from the black-knot, or nearly so?

J. MCAINSH, *Belton, Ont.*

Reply by Geo. Cline, Winona, Ont.

Plums in my orchard, free from black knot for 18 years, are German Prune, Coe's Golden Drop, Glass, Huling's Superb, Pond's Seedling, Reine Claude, Washington, Victoria, English Samson, Bradshaw, Yellow Gage.

Plums that have not had much knot are Duane's Purple, Yellow Egg, Imperial Gage, Columbia, Munroe, Egg.

The worst for rot are Lombard, Gen. Hand, Golden Gage, McLaughlin.

CHINESE LILY NOT BLOOMING.

SIR,—The Chinese lily I received from the Association last year has not bloomed. I dried off top, rolled the bulb in paper and laid away in a box until the middle of December when I placed it in water with sand and gravel.

J. W., *Toronto.*

Reply by Anton Simmers. Toronto, Ont.

Your experience with the Chinese Sacred Lily, is one that will in some cases be the unsatisfactory result of growing the lily a second season; but we cannot give any actual reason for their so doing. It is often a similar experience with hyacinths, when they are planted a second season for blooming, and really this is more than the grower should expect; but, as stated in a previous experience, we have had fairly good results from the bulbs planted the second year. The only conclusion we can arrive at is, that the second season bulb cannot be relied upon to produce a good bloom, unless in the selection of the very strongest specimens. To the grower who has failed to get bloom from the second year bulbs, I would suggest that he try such again, and then he will be better able to say just what the ultimate result is of such bulbs; and in his second venture let him select only the strongest bulbs for a second crop of bloom.

A BUNDLE OF QUERIES.

SIR,—Is Moore's Ruby as prolific as Fay's currant; also, is it as hardy and of as good quality? Does it grow in clusters? Does the Saunders plum resist curculio and black-knot, and is it a profitable plum to plant for market? What about the Ritson pear? How much per acre may be expected from an orange quince orchard, five years planted?

W. C. WILSON, *Essex Centre.*

Some of our readers please answer. The fact is these varieties are new, and are just being tested. The experience of those growing them is just what we want for publication. We find the Orange quince profitable at Maplehurst, where we have about one acre devoted to them but the amount depends so much upon markets, cultivation, season, etc., that any estimate might be misleading. In our opinion they compare favorably with a crop of dwarf pears.

PLANTING PEARS AND PLUMS.

SIR,—Is it advisable to pack the roots of pear and plum trees with sand when planting in heavy clay, and what is best method of planting in such soil!

WM. STEELE, *Humberston, Ont.*

An admixture of sandy loam to the clay soil in which pear and plum trees are to be planted would be very useful. It should be well dug in and thoroughly mixed with the clay and thus would render the latter more porous. In some cases we have planted trees directly on the surface of heavy clay, in a pile of sandy loam, and their success has been quite remarkable.

CHEAP FERTILIZER.

Will the cheap fertilizer given on page 61 of the CANADIAN HORTICULTURIST be a proper compound for clay loam? Will it result best to mix the sulphate of ammonia and bone meal and sprinkle along the matted rows of strawberries, and afterwards broadcast the ashes; or mix all together and broadcast over the matted rows and paths? Would a larger quantity of ashes per acre result still better?

Reply by Prof. James, Ontario Agricultural College, Guelph.

1st. The mixture is suitable to any land on which fruit is being successfully grown.

2nd. The sulphate of ammonia and bone meal should not be mixed with the ashes for any considerable length of time before applying, as the lime of the ashes, if they are at all fresh, may drive off some of the ammonia. Better mix as you apply, or apply them separately.

3rd. The dose of ashes can be doubled, if procurable; but it would be preferable to apply in a couple of doses rather than all at once. The amount of ashes or of any special fertilizer that can be economically used in any fruit crop, must be determined by experience in connection with each farm.

DURABILITY OF PARIS GREEN.

SIR,—How many years will Paris green remain effective? W. W. R, *Toronto.*

Since this substance is not volatile, we know of no reason why it should lose strength by keeping.

Open Letters.

VALUABLE WASH FOR TREES.

SIR.—The followiug is an exceedingly valuable wash for trees:

Take lime, slack, and prepare as for an ordinary whitewash, in an old barrel or box. Take enough at a time to make a bucket two-thirds full—proper consistency for ordinary whitewashing. Now add one pint of gas-tar, one pound of whale-oil soap; dissolve one pound potash, or one pint of strong lye from wood ashes, or box concentrated lye; then add clay or loam enough to make the bucket full of wash of proper thickness to be applied with a whitewash brush. If the trees have had the earth ridged up around them, take the earth away from around the collar, and apply to the body of the trees from the limbs down to the ground, or down to the roots.

Its advantages are: 1st. It will destroy all scale insects, the bark louse, etc., and will give the trees a bright, clean, healthy appearance. This wash will drive out all borers that may be in the trees, and the moth will not deposit eggs on or about the trees during the season the wash is used. All who grow apple, peach, dwarf pears, quince and ash trees, should not fail to use this wash, as it is not patented and sold at a high price. I have known cases where peach trees become healthy and vigorous with one application of this wash. Again, mice and rabbits will not girdle trees where it is used. Apply in May for borers and general benefit to trees, and the late autumn as a preventive against mice and rabbits. Gas-tar, when applied pure, will kill trees.

F. S. FAIRFIELD, *Orono, Ont.*

FRUIT IN HURON COUNTY.

SIR,—I have twenty-five Fameuse and twenty-five St. Lawrence apple trees, which are thrifty growers and hardy, but the fruit has become worthless on account of the scab. Would you advise me to top-graft them to Baldwins, as this variety is one of our best shipping apples, an early and an abundant bearer ; but tender here, unless grafted upon some hardy stock. The following varieties of winter apples succeed best in this county : Northern Spy, Canada Red, Golden Russet, Roxbury Russet, Wagener (bears to heavy for profit), English Russet (shy bearer), Rhode Island Greening (poor grower here), King, Ribston Pippin. Of fall apples the following do well : Twenty-Ounce and Blenheim Orange. These two varieties ship well to the Englsh market, but need to go a little earlier than the winter varieties. For summer market apples, the Duchess of Oldenburg and Maiden's Blush are excellent and will ship to any market in our own province.

The Ontario apple that I received as a premium with the CANADIAN HORTICULTURIST is a very good apple. It is an early and abundant bearer, fruit about medium size, color somewhat resembles the Spy with rather a deeper red on the sunny side, but the flavor is too tart for my taste. It will keep well until April or June, indeed it promises to be one of the best winter apples for shipping purposes. JOHN FOTHERGILL, *Marnock, Ont.*

NOTE.—We would call the attention of our correspondent to the prescribed remedies for apple scab. We would advise him to give them a fair trial before top-grafting his trees, and then should he fail to grow fruit clear enough for market purposes, it will be soon enough to top-graft them with the Baldwin. The latter would, perhaps, be hardier grafted upon these varieties. *Ed.*

ONTARIO FORESTRY REPORT.

SIR,—If you can spare space, I should like to inform your readers that the Forestry Report for the year is now ready, and that I will send copies free of all charge to any who are interested in such matters and will send their addresses to me at 251½ Richmond Street West, Toronto.

It is full time that, in Ontario, people were planting trees, not only for protection from wind along the roads and fences, though that is an excellent work, but in close plantations of ash, hickory, elm, and such hardwoods as will be, in a few years, of great use on the farm, and will also command a high price when sold to the manufacturer.

If we plough and harrow a field—in fact, get it in good order for any ordinary farm crop—and then plant, four feet apart each way, such trees as we want, and make a point afterwards of passing through the lines twice a summer with a cultivator, taking care not to cut the roots, we shall find that these young trees, emulating each other in their endeavor to rise upwards, will grow straight tall sticks, clear of knots, and will furnish good timber for any purpose—timber which, in a few years, will hardly be obtainable here. These trees will thin themselves, or can be thinned by hand, at the option of the owner. Either way I have known answer well.

Yours truly,

Toronto, March 26, 1891. R. W. PHIPPS.

MOORE'S ARCTIC.

SIR,—In reply to an inquiry made by Mr. J. McAinsh in the last issue of the HORTICULTURIST, regarding the Moore's Arctic plum, you are open to correction, at least your statements are subject to modification. When you assume that the Moore's Arctic is not curculio proof, you speak evidently without the experience of those few who have tried to grow that plum in these more northern sections. I have met with that plum in several localities hereabout during the past season and can testify of what I have seen. The Moore's Arctic plum is curculio proof in all these northern localities where I have met with it. There is not enough of the miserable thing for the larvæ to feed and exist upon. For this reason, and for no other that I know of, the parent fly with a natural instinct for perpetuating her species, passes it by. The farmers should treat the Moore's Arctic plum with the same degree of contempt.

Mitchell, March 20. T. H. RACE.

IMPORTANCE OF TIDY PREMISES.

Sir,—Will you kindly insert the following in your valuable paper. In this neighborhood, I have noticed farmers and fruit growers are expecting to sell their farms to Englishmen. Quite a number of such sales have, in fact, been made. As an Englishman myself, I would offer to suggest to any one wishing to dispose of his property, that buyers are influenced a good deal in their choice of a home by the general appearance of the home and surroundings, and will pass by a farm of good soil entirely on account of the slovenliness of the door yard, gates, fences and approach. Englishmen set great store by nice shade and ornamental trees planted along the drive ways, line fences and road side. Some old fashioned flowers, rose bushes, and suitable shrubs, give that home-like look to which English people are accustomed. The outlay is very slight compared with the advantages gained in the increased beauty of the landscape. Trees can be procured to suit all soils from the poorest sand to stiff clay. Tree planting for profit has been so repeatedly dwelt upon in your pages that it is unnecessary for me to discuss this branch of the subject.

I am, yours truly,

Hugh Allen, *Winona, Ont.*

TREES AND PLANTS TESTED.

Vladimir Cherry—Yellow Transparent Apple—Golden Queen Raspberry.

Sir,—The plants that I have received for trial have all lived and made fair growth. The Vladimir Cherry tree received in 1887, had some fair-sized but very bitter cherries on last summer's, and one black knot. The Yellow Transparent Apple received in 1886, has made good growth and bore some very nice, early apples. They were a great deal better than the Early Harvest, and I think a little better than Tetofsky. The two Golden Queen raspberries received in 1888 have grown and suckered greatly and bore a few nice, yellow berries. The bushes blossomed again in the fall, but there was was no second crop.

J. Ellerby, Jun., *Woodbridge, Ont.*

TO DESTROY WIRE WORMS.

Some correspondence has lately appeared in the Horticulturist respecting the use of salt for destroying the wire worm. This pest is hard to get rid of, and salt is but a partial remedy. Gas lime is a much more effective agent in exterminating it. Two years ago I had a fine crop of potatoes which were rendered unfit for the table by its ravages. After the crop was harvested I applied about twenty wagon loads of gas lime to the acre and plowed it in. Last spring I again planted this field to potatoes and the result was most satisfactory. Very few of the tubers were affected. The dose was heroic and about as strong as can safely be administered. I get the lime for carting it away.

R. McKnight, *Owen Sound.*

BETHEL AND GRIMES GOLDEN APPLES.

Sir,—I find that the Bethel of Vermont is called Shaker Pippin in the Eastern Townships, Winter St. Lawrence in Hunterdon County, and French Nonpareil around Montreal.

There is no apple we like so well for February and March as the Grimes' Golden, my friends pronounce them delicious. The tree is only medium in hardiness, but bears heavily every year; the color may be against them as a market variety, but should sell as well as the Greening. My Fameuse and Wealthy kept twice as long in tight barrels as on shelves in my cellar. Don't you think this is proof against putting apples in ventilated barrels and cases?

I am, yours truly, R. Brodie, *Montreal.*

HIGH PRICED PLANTS.

SIR,—Enclosed I send you a new subscription, together with my own and another renewal. In doing so, I have acted on the principle that, having found a good thing, I should show some one else the way to it. Your valuable paper should be in the hands of every one and especially of the farmers of this Province, and would, I am sure, open the eyes of the public to the magnitude of some of the frauds perpetrated by oily-tongued agents. One of this class was offering Cuthbert raspberries, last winter, for the trifling outlay of $2.50 per—dozen!

A. S. DICKSON, *Seaforth, Ont.*

NEXT MEETING OF MICHIGAN FRUIT GROWERS.

SIR,—The next meeting of this Society will be held in Port Huron, and will be timed so that all in attendance may also take in the annual celebration. All members of the Ontario Fruit Growers' Association are invited informally to meet with us and make it a festive occasion. Ladies are particularly invited.

L. B. RICE, *Port Huron, Mich.*

Our Book Table.

BOOKS.

FUNGUS DISEASES OF THE GRAPE AND OTHER PLANTS AND THEIR TREATMENT. By T. Lamson-Scribner. Published at Little Silver, N. J., by J. T. Lovett & Co. 1890.

A book of 134 pages, neatly bound in cloth and profusely illustrated, which ought to be in the hands of every fruit grower. Mr. Scribner herein treats of such diseases as the mildew, the scabs, rusts, etc., in a popular style, so that every one can understand their nature and apply proper remedies with intelligence; and yet in a sufficiently scientific manner to satisfy the scholar.

The study of these fungi has become positively essential of late to success in fruit culture, and the man who neglects it and the remedies prescribed, will be far behind in the quality of his fruit at harvest time.

THE ILLUSTRATED DICTIONARY OF GARDENING. Edited by Mr. George Nicholson, Curator Royal Botanic Gardens, Kew, Eng. This is the most complete work of the kind ever published, full of both scientific and practical information upon all lines of gardening, for either profit or pleasure. It contains 2370 first-class engravings, together with numerous elegant colored plates. Published in four volumes, in cloth. Price $20. It may be ordered through this office.

THE DOMINION ILLUSTRATED. Those persons who have not seen the *Dominion Illustrated* since it has been so much enlarged and improved, should secure a sample copy. Both from the literary and artistic point of view, the *Illustrated* is a credit to Canadian journalism. On receipt of 12 cents in stamps the publishers (the Sabiston Litho. & Pub. Co., Montreal) will send to any address a sample copy with full particulars.

LINDENIA—The "Graphic of Orchids," conducted by F. Linden, Lucien Linden, Em. Rodigas, and R. A. Rolfe. February number, 1891. This is the first number of an American edition, which will be published regularly on the first of each month and issued in half-yearly volumes, each of which will form an album of beautiful portraits, in natural colors, of new, rare and popular Orchids. The plates are 14½ inches long by 11 inches broad, and each monthly number will contain four plates with eight pages of text in English, with Latin diagnosis. The specimen before us has been issued in elegant style and the four colored plates are exquisite works of art. This edition will be carried on in exactly the same way as has the French edition during the last six years, in which 264 species or varieties have already been figured. The terms of subscription to this charming work are $6 for six months, post-free. Published by Lucien Linden, 100 Rue Belliard, Brussels, (Belgium).

CATALOGUES.

SMALL FRUIT PLANTS. Price List. John Little, Granton, Ont.

Fruit Growers' Supplies.

SPRAYING FRUIT TREES.

Recent census statistics show that the ravages of our insect pests, costs the fruit growers of the United States, the enormous sum of $200,000,000 annually, and experiments by our leading Entomologists and Horticulturists, show, that 75 per cent. of this loss can be prevented by the proper use of insecticides. The actual cost of spraying the average fruit trees, does not exceed three to four cents per tree per season, counting time and material. Mr. P. C. Lewis, of Catskill, N. Y., has just issued a catalogue entitled, "Will it pay to spray fruit trees." In this catalogue is given the experiments of many of our leading State Entomologists and large fruit growers, and their experience in fighting insect pests. The result of these experiments in many cases have been almost beyond belief, and teach one thing, that is, that in order to have perfect fruit you must spray your trees. This catalogue is full of valuable information on this important work, and will be sent free. *See his advertisement below.*

SPRAY YOUR TREES. $17 Spraying Outfit Express Paid, for $5.50.

Outfit Combines 3 Complete Brass Machines. Will thoroughly SPRAY A 10-ACRE Orchard per day.

A valuable Illustrated Book (worth $5) on "Our Insect Foes," given to each purchaser. My agents are making from $5 to $20 per day. GOODS GUARANTEED AS REPRESENTED OR MONEY REFUNDED. Don't buy a spraying outfit until you receive my illustrated circulars, price list, and other valuable matter on spraying fruit trees and vines. *Write at once and mention this paper.*

Address, P. C. LEWIS, Catskill, N. Y.

SPRAYING OUTFITS.

LATEST IMPROVED, CHEAPEST AND BEST.

OUR EMPIRE Stirs the Liquid Automatically and will spray one hundred Trees per hour.

OUR KNAPSACK For Vineyards and Nurseries, is all Copper and Brass with a Vermosce Nozzle.

OUR VICTOR IMPROVED Is operated by horse power, for use in Vineyards or Orchards, has four nozzles, throws four sprays in Vineyard or two sprays in Orchard. We have Outfits ranging in price from $3 to $65. Write for our Circulars containing formulas, recipes and general information on the subject of Insects and fungus growth on Vines and Trees.

April 3t. FIELD FORCE PUMP COMPANY, Lockport, N. Y.

Nurserymen and Seedsmen.

A NURSERY AT YOUR DOOR.

$1 Packages for Small Gardens Free by Mail.

1—**30 Strawberry Plants,** assorted packages of such new and valuable kinds as Bubach, Jessie, Warfield, Harcoland, Belmont, Ontario, Parry, Eureka, Big Bob, Ohio, Pine Apple, Seneca Queen, Cloud, Gold, Burt, Mrs. Cleveland, Sandy's Prize, etc., each sort properly labelled, for $1.00.

2—**20 Cuthbert Raspberry Plants,** this season's growth, for $1.00.

3—**20 Marlboro Raspberry Plants,** this season's growth, for $1.00.

4—**25 Tomato Plants** (Ignotum, Early Mayflower, Early Ruby, etc.) for $1.00.

5—**50 Celery Plants** (New Rose, White Plume, etc.) for $1.00.

6—**100 Cabbage Plants** (Early and Late), for $1.00.

7—**12 Egg Plants** for $1.00.

Address, **H. J. JOB, Gardener, Grimsby, Ont.**

First Prize Dahlias.

The largest and most complete collection of Dahlias in Canada. Send for price list of New Geraniums, Roses, Carnations, Begonias, Chrysanthemums, etc. Double, Single and Cactus Dahlias.

SEEDS.

New Ignotum Tomato, earliest and best yet, and Grand Rapids Lettuce, best for greenhouse or forcing.

GRAINGER BROS.,
DEER PARK CONSERVATORIES,
Feb. 4t. TORONTO.

"THE WILLIAMS' STRAWBERRY."

A few thousand plants of that splendid berry for sale at $1 per hundred. For description see August number of CANADIAN HORTICULTURIST, for 1890.

April 2t. **DAVID GREIG, Cainsville, Ont.**

Eaton & Moore's Diamond

The Two Best New Grapes.

2 GOOD one year old vines of either kind mailed and warranted to come in good order, for $1.00. Three strong two years old for $2.00. Address,

SMITH & KERMAN,
May 1t. ST. CATHARINES, ONT.

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ORNAMENTALS, Etc.,

Strictly First-Class.

Grape Vines and Small Fruits are specialties.

Send your order to the Central, (it will pay you). The Mailing Department receives Special Attention. Prices right.

MOTTO—"Square dealing and the best stock in the market for our customers.

A. G. HULL, Central Nursery, ST. CATHARINES.

Catalogue Free. Send in your list for prices. Dec. 6t.

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Commission Merchant,

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My business is solely commission. The only plan which does justice to the consignor. I handle everything which the grower may have to send from home to sell. None of my own goods to sell in preference to yours when the market is good. Nothing between you and best prices obtainable except my commission. ☞ *Prompt sales and quick returns.*

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REFERENCES—Dominion Bank, Toronto, and Imperial Bank, St. Catherines.

May. 6t.

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AND

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Account Sales with cheque weekly, or as desired. Consignments of Choice Fruit (via Glasgow) solicited.

REFERENCE—The National Bank of Scotland, High St., Edinburgh.

Oct. 16t. Telegraphic Address—Wood, Edinburgh.

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New York.

Feb. 12t

Fruit Growers and Nurserymen's DIRECTORY

In this column we will give the names and addresses of Fruit-Growers and Nurserymen, to occupy a space of two or three lines. Fruit dealers in inland towns would generally prefer ordering their goods direct from the grower, if they had the addresses and knew from whom to order. There are other benefits that will suggest themselves, as finding buyers for plants, etc., etc. Nurserymen will understand how they will be benefited by having their names in this column. The charge will be $2.00 per year.

A. M. SMITH, St. Catharines, Ont.

Formerly SMITH & KERMAN. Orders by mail for Nursery Stock promptly attended to.

Miscellaneous.

Benefit of Advertising in Canadian Horticulturist.

Since your favorable notice of the Williams Strawberry appeared, I have sent them through the greater part of Ontario in small quantities, and have a promise of large orders for the spring. They have gone from Pelee Island in the South to Almonte and Ottawa in the North, including the Dominion Experimental Farm, etc. DAVID GREIG,

CAINSVILLE, ONT.

Canadian Poultry Review.

A large monthly Journal. Contains all the news of the Dominion. Well Illustrated. Practical and Interesting.

$1 per year; 10c. per copy post paid.

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The Official Organ of the Canadian Kennel Club. Contains the C. E. C Registrations. Nicely Illustrated. Full of Practical Advice.

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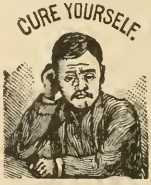
Nov. 12t. Toronto, Canada.



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Face pimples, impure blood, loss of nerve and strength, from whatever cause arising, cured by **DR. PERCY'S NO. 1 POSITIVE HERBAL REMEDY.** Similar formula used in asylums. In small pill form. Sent by mail on receipt Two Dollars in plain, flat, sealed package. Equals combined sale of similar specifics. ☞ **Sealed Pamphlet free.**

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PLANT NOW!!

THE month of MAY is usually *the best planting* month of the year the ground being warm, mellow and in proper condition. We have a very excellent assortment of **"GOLD MEDAL" Nursery Stock,** quite dormant, which may be packed and shipped anywhere with safety. We mention Standard and Dwarf Apples, Pears, Plums, Cherries, Peaches, Russian Apricots, Quinces, Currants, Industry and other sorts of English Gooseberries, American Gooseberries, Raspberries, Blackberries, Dewberries, Juneberries, Strawberries, Russian Mulberries, Nut Trees. Our stock is very complete in the Ornamental Department; would mention Street Trees of large size such as Elms, Maples, Horse Chestnut, Lindens, Poplars, Mountain Ash, European Ash, etc., and same sorts of smaller sizes for inside planting. Weeping Trees, Trees of curious foliage such as Purple Beech, Rosemary Leaf Willow, Cut Leaf Beech, Birch, Linden, Maple, and others. Evergreen Trees and Shrubs such as American Arbor Vitæ, or White Cedar, Norway, and White Spruce; Scotch, Austrian, and Swiss Stone Pines; Berberry, Buckthorn, one foot Norway Spruce, White Cedars, one to four feet for hedges; Flowering Shrubs of all kinds, Moss and H. P. Roses, strong one and two year bushes of best sorts in existence; 1500 large and small flowering Dahlia roots of first prize kinds (100 varieties). Other general Nursery Stock too numerous to mention here. Orders mailed to us will have the best possible attention. Our Nurseries are established over 50 years and our patrons are all over the world.

Send for our Priced Descriptive Catalogue mailed free.

☞ A GRAND STOCK OF HARDY GRAPE VINES

Small stock can go by mail at 1 CENT *for 4 ounces,* 20 CENTS *for 5 pounds.*

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TORONTO NURSERIES.

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(1) **A Bound Copy** of the Annual Report of 1890, containing full reports of all journals and discussions on the subject of Fruit Culture, well worth $1 to any fruit grower. This is just ready for distribution.

(2) **The Canadian Horticulturist,** a monthly journal especially adapted to Canadian fruit growers. The only journal in the interests of their own industry. Most papers on fruit growing are published by nurserymen in the interests of nurserymen.

(3) **A Choice** from the following list of Trees, Plants, etc., for testing:

I. **Russian Apple.** Stock exhausted.

II. **The Mills Grape Vine.** A high quality Black Grape, said to make raisins. It has been sold by Ellwanger & Barry at $1.75 each. It originated with the late W. H. Mills, of Hamilton, who last winter gave the Fruit Growers' Association his whole stock.

III. **The Williams Strawberry.** A new Canadian variety which has created a great sensation about Brantford. It is a cross between Crescent and Sharpless and possesses the merits of each.

IV. **A Volume of the "Canadian Horticulturist,"** Vol. i., ii., iii. or iv. These have no colored plates, but contain much valuable information.

V. **Triomphe de Vienne Pear.** (Stock Exhausted.)

VI. **Two Cannas, different colors.**

VII. **General Jacqueminot Rose.** (Small plants.)

VIII. **Two Dahlias.**

IX. **Five Strawberry Plants,** either Bubach, or Ohio, or Belmont, or Jessie, or Mrs. Cleveland, or Cumberland.

ALL AGENTS may retain 20 cents for each new subscriber, or two renewals; but in place of this commission they may have, for each, one choice from the list of plants above.

Outfits for canvassing, including sample copies, posters, envelopes, etc., will be sent **FREE** on application. Address

L. WOOLVERTON,

Secretary of the Ontario Fruit Growers' Association, Grimsby, Ont.

Fruit and Ornamental Trees.

Largest Stock in Canada of Strictly Graded Canadian Grown

GRAPE VINES

Guaranteed true to name or money refunded, grown from wood of vines on the Helderleigh Fruit Farms. I am headquarters for the choicest, earliest, purely red grape before the public, the Moyer, ripens August 15th to 25th. A fine assortment of Plum, Peach, Pear and Apple Trees, Berry Plants, Norway Spruce, etc. Be sure not to order Nursery Stock until you get my price list, which will be mailed to you FREE on application. It will pay you well to wait.

E. D. SMITH, Helderleigh Farms Nursery,

WINONA, ONT.

RABY Castle Currants, Grape Vines, Norway Spruce, Scotch Pine, Hardy Catelpa and Nursury Stock generally.

E. MORDEN,

Mch. 3t Niagara Falls South, Ont.

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The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

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Price $1.00 per annum (including Membership, Annual Report and Share in Plant Distribution). Single Copy 10 cts.

W. H. Smith,

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My business is solely commission. The only plan which does justice to the consignor. I handle everything which the grower may have to send from home to sell. None of my own goods to sell in preference to yours when the market is good. Nothing between you and best prices obtainable except my commission. ☞ *Prompt sales and quick returns.*

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Headquarters for Canadian fruit produce.

58 and 60 WEST MARKET ST., and 121 and 123 MICHIGAN ST.,

BUFFALO, N.Y.

REFERENCE.—Bank of Commerce, Buffalo, or any first Commercial Agency. 6–4t.

Fruit Growers and Nurserymen's DIRECTORY

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Miscellaneous.

THE NEW WEBSTER

JUST PUBLISHED—ENTIRELY NEW.

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The Authentic "Unabridged," comprising the issues of 1864, '79 and '84, copyrighted property of the undersigned, is now **Thoroughly Revised and Enlarged,** and bears the name of

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Editorial work upon this revision has been in progress for over **10 Years.**

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BACK volumes bound for subscribers in style above for 50 cents each, and returned free. ADDRESS.

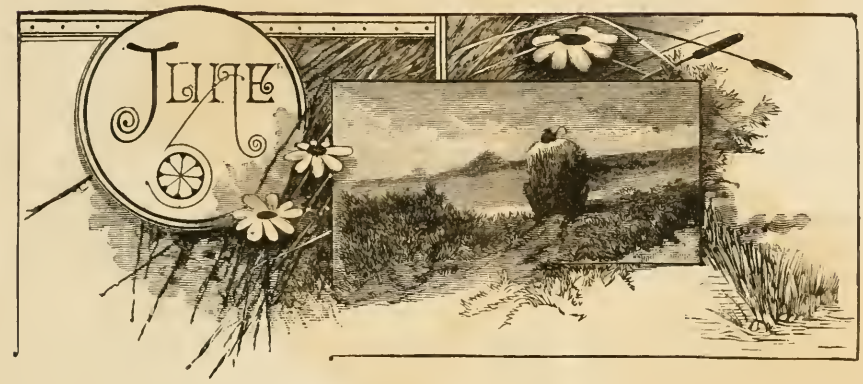
CANADIAN HORTICULTURIST,

GRIMSBY, ONTARIO.

THE

Canadian Horticulturist.

Vol. XIV. 1891. No. 6.



DOWNING GOOSEBERRY.

CANADIAN fruit growers have not, thus far, entered very largely into the cultivation of the gooseberry for market. It will, therefore, surprise them to learn that in that excellent work, the "Dictionary of Gardening," edited by Mr Geo. Nicholson, of Kew Gardens, over eighty distinct varieties of gooseberries are named and described, very few of which are in the least degree familiar, even by name. The explanation is that the cool, moist climate of England is exactly fitted to bring about the best results in gooseberry culture, while in our dry, hot summers, the mildew utterly ruins these foreign kinds.

A few natives, however, have been found to succeed admirably in Ontario, and to these we must look for the success in this industry, which we are sure will be extended in the near future, as improved varieties are introduced which are adapted to our own country.

The gooseberry is largely used in England in the green state for pies, tarts and puddings, and were the fruit present in larger quantities and in greater variety in our markets, there is no doubt the demand for it would be increased to an almost unlimited extent.

Of the few native varieties which have so far been introduced into cultivation in Ontario, the Downing is by far the best and most popular. It originated some years ago, at Newburgh, on the Hudson, and is now widely disseminated. The fruit is of a medium size, roundish-oval, and of a pale green color ; the rib veins

are quite distinct; skin, smooth; quality, very good; bush vigorous, stocky and upright; a strong grower and productive. It is considered very hardy, and is very little subject to the mildew. Our colored plate for this month gives our readers a very excellent illustration of this variety.

Among other native varieties we have the Houghton's seedling, which has been discarded on account of its small size; Smith's Improved, a seedling of Houghton, which is nearly as good as the Downing, and often competes with it for a place in our markets; Pearl, a seedling of Houghton crossed with White Smith, which appears to excel all others we know of for productiveness; a variety which was fully described on page 317, vol. 12, of this journal. There are other Canadian and American seedlings which are being highly commended by their introducers, some of which we have in testing at Maplehurst, as, Crosby's seedling, which originated in the Township of Markham, and which bears evidences of English origin; Sutherland's seedling, a fine appearing gooseberry, from Mr. Geo. Sutherland, Owen Sound, and some seedlings originated by the late James Dougall, of Windsor, which are being tested at the Rural Experimental Grounds, near New York City, etc.

Although none of these varieties compare in size or beauty with those grown in England, yet improvements are constantly being made, and there is no doubt that in time such varieties will be brought to the front as will give special impetus to the cultivation of the gooseberry in Ontario.

CROPS IN ORCHARDS.—The best crop an orchard can produce is a crop of fruit. But many think that the soil in that particular locality can do double duty just as well as not. Yet there is a difference. Some crops are worse in an orchard than others; as, for instance, the small grains—wheat, oats and rye. The opinion of the late R. L. Pell, who raised and sent to England such immense quantities of the Newtown Pippin apple a number of years ago, was that three successive crops of rye would ruin any orchard. On the other hand, corn, potatoes and such products as require cultivation during the growing season, will do less injury, because the trees receive part of the benefit of the operation. Indeed, if manure is supplied to compensate for what is removed in the corn or potatoes, the cropping would altogether be beneficial to the trees, except that without special care the roots will be more or less mutilated. In the case of a young orchard, this danger does not exist—and cropping is to be recommended. But liberal manuring should not be omitted; and the crops chosen should be those requiring frequent stirring of the soil.—*Ex.*

AN exchange tells us that the quickest way known to make an independent fortune is to get a pencil and a piece of paper and commence growing fruit. No land and no experience is required in this sort of a horticultural venture and an immense amount of success can be worked out in a season, and you know "figures never lie."

PLAIN HINTS ON FRUIT GROWING.—IV.

LITTLE ECONOMIES AND EXPERIENCES.

ONE of the greatest elements to forward the fruit-growing interest is *success!* It is a late-coined adage that "nothing succeeds like success," and to this we may add "nothing *encourages* as much as success." *How to succeed* should be the theme of every one who engages in fruit-growing, and this implies the question of economy and good management. The article in August HORTICULTURIST of last year, headed "Small Orchards," is very pat on the economic theme, and deserves a hearty, practical endorsement by all who expect to succeed in the work of fruit-growing. I once inspected a fruit garden of ten acres, back of the mountain near Montreal, from which the owner told me he realized a net profit of $1,000 per year on an average. I call that a *success*, and it has encouraged me very much in my little efforts in the fruit industry. Of course this garden was managed carefully on the scale of economy. There was no expenditure that was not profitably utilized, and no waste allowed; everything being done with an eye to profit and safe return. Three years ago, I read a little work called "Ten Acres Enough," which practically illustrated what might be profitably realized on a ten-acre farm with right management But as I believe in theory and practice going hand in hand, I will not advance anything but what I have proven practically.

As "economies and experiences" afford much range of detail, one feels hardly "up to the occasion" in doing the theme ample justice, but as every one in any particular line of effort, can add *something* to the common stock of experience to encourage his fellows in the same line, however meagre that experience may be, it behooves each one to add his mite for the common interest. Every one whose heart is in his work, will devise and improvise something that he has never seen, done nor heard of, and if he makes a note of it for the benefit of others, he aids in helping up the interest which cheers and encourages many besides himself.

Last year, that I might not lose the use of the land I wished to set out in strawberries, first planted it with corn in hills three feet each way, setting three strawberry plants between each two hills of corn.

The plants did well in the shade of the corn, and the hillage of the corn suited that of the berry plants; and in the fall the corn was cut for fodder and carried off and "stooked" on the margin of the plat. Later on, after the frost is in the ground, a clip with a narrow hoe will cut off the stub that remains of the corn stalk, and the plat is ready to cover for winter protection. I covered this year with brush, both evergreen and deciduous, which I find keeps on the snow late, also keeps it from caking down into ice on the plants while it is melting, if a freezing time comes before it is all away.

I am removing the brush now (April 2nd), and adding a light coating of straw, for the double purpose of protection against any cold "snaps," and to keep the berries from the ground. In a cabbage patch I set out four rows of Cuthbert raspberries, seven feet apart, plants 2½ feet apart in the row; I have strawberries on one side of the raspberries, and intend setting out strawberries on the other, intending the long rows of Cuthberts for a wind-break, allowing them to grow to fill space in the row, but keeping the space open between rows for planting in potatoes, cabbage, etc. I intend to planting early corn for marketing green, through what strawberries I set in this spring. I took up a patch of early potatoes last summer in time to set in strawberries on the ridges where the potatoes came out, a dressing up in shape with a hoe being the preparation needed for the berry-plants as the land was rich and friable.

I set cabbage plants between the newly set currants and find they do well, as the tillage they require is profitable for the currants. I intend getting out Cuthbert raspberries along my fences and letting them grow "as they please," to form a close break-wind to contain the snow. Any device to retain the snow late is an advantage with us in the "cold north." Wherever a drift crossed my strawberries, they are green and fresh now, but with all my pains in covering, in places where the snow was away early, the "sere and yellow leaf," predominates.

I have tried several kinds of material for covering, and, next to evergreen boughs, I place tomato tops. They are a good protection and do not allow the snow to melt down and smother the plants. As we had about a foot of frost in the ground when the snow fell first last fall, I was not anxious about wrapping trees with straw, as the sap would be late kept back. I merely trample the snow hard around the trees as a guard against mice. After the snow went, I added long manure to keep in the frost as late as possible, and now (April 13th), they show little signs of budding.

A word on forwarding rhubarb growth. To-day I put fresh horse-manure around the newly-started buds, about a patent pailful to each root, raising a ring of several inches high around, taking care not to cover the buds, and putting the most on the north and west side to break the chilling winds. This does two things: adds warmth and nourishment.

And as a closing thought on economy, let me add, do not be so full of conceit as to reject little hints and notes from the experience of others. Make the most of the experiments of the "Farms" the Dominion Government have established. If not near to visit them, send and get their bulletins and yearly reports, for they are profitable to any unbiased mind. Amid all the political croaking, the Government has done, and is doing, a good work for the farming and gardening community in the establishment of the Experimental Farm and its branches; and what remains for the farmers and gardeners to do is to lay aside their party prejudices, and come forward and profit by what has been done by the Government for their benefit, and then the value of what has been done

will be more apparent. I am no partizan in politics, but speak from a standpoint of practical utility, the only impartial point one *can* speak from. But lest I become tedious, I will close by urging the amateur fruit-grower to *persevere* and success is certain.

Nepean, April 13th, 1891. L. FOOTE.

KEEPING GRAPES.—A correspondent asks for further information concerning keeping grapes. Of course a fruit house is the proper thing for those who go extensively into the preservation of grapes to supply a winter market. My own success has been best in clean drawers, where the grapes, after being spread without one bunch lying on or crowding another, are kept as cool as possible without freezing. If I intended to make a business of it, I would construct tiers of shallow drawers as cheaply as possible. The very best grape for storage with me is Diana. It is a rich grape when slightly dried, and keeps well into January or February. Herbert is a grand grape, but loses quality by the end of December. Iona, though tender, thin-skinned and brittle, is a capital keeper for early winter use. Goethe keeps fairly, but loses flavor.

That the American people are getting to be less a nation of meat eaters and more a nation of fruit eaters, I am pleased to make sure of. The consumption of grapes is enormous, but so far the supply is not increasing beyond the increase in demand. However, the main thing to aim at in horticulture is well-supplied houses. Every house should have a Worden, a Diamond, a Niagara and a Brighton grape vine; and if climate is too severe, cover them winters. They will endure almost any degree of frost while leafless. Pack snow about them to induce slow starting in spring. At all events have them, even if you must grow them under cover. They furnish the very best fruit product known. Eat less meat and no pastry; and eat all the fruit you desire, and see how great is the advantage to health. My own children never eat meat or butter, but grapes and honey and cereals, and never know an ill of stomach or head.—*Popular Gardening.*

TREES FOR PLANTING IN TOWNS.—On October 15th the Ash trees were fresh and green, whilst the majority of other trees were either leafless or looked seedy. The Ash was late coming into leaf, but its smoke-enduring properties render it a most desirable tree to plant. The Canadian Popular is another most valuable tree for this kind of planting. The Sycamore retains its foliage to a late period in the season, and in shape is well suited for avenues. Thorns are also good town trees, but are not, perhaps, sufficiently arborescent for an avenue. The Horse Chestnut would be also found a suitable tree for town planting, and several kinds of Willows would succeed well in smoky districts. These are all deciduous trees; the only evergreens that could be recommended are the Privet and Box.

HOW TO DESTROY OUR INSECT ENEMIES.

HE insect enemies of the fruit grower are yearly increasing in number, making the business of cultivating fruit much less simple than formerly; but this only enables the enterprising man to reap the greater success, for, with the many implements and remedies now within reach, almost every kind of insect and fungus may be destroyed, and fruit of the finest size and perfection be produced. In this article we propose to deal chiefly with some of the more familiar, the chief object being to point out the latest and most approved remedies.

PLANT LICE are of late, among the most common of all insect foes, and frequently are very difficult to overcome. Green ones are found in the early spring upon the young apple leaves, sucking away their strength; and black ones in immense numbers cover the leaves and fruit of our cherry trees, a little later on, quite destroying one's appetite for this luscious fruit. Spraying with arsenites, and many other remedies which we have tested, have proved entirely unavailing to remove these pests, but kerosene emulsion carefully applied is effective. A good recipe for its preparation is as follows: One quart soft soap, one pint kerosene oil and two quarts of water. A strong suds is first made and the kerosene added while warm, when a permanent mixture will be formed, and this should be diluted with four gallons of water when required for use. The trees should then be thoroughly sprayed with this emulsion and the earlier the work is done after their first appearance the better.

BARK LICE have been so frequently described in these columns, together with the methods of treatment, that little need be said here regarding them. The oyster shaped scales, from which they derive the name of oyster shell louse, and which appear so harmless in the autumn and winter months, are each a protection for 60 or 70 tiny eggs. These hatch out about the first of June into young lice, so small that they can scarcely be discerned without the aid of a hand glass. About this time they creep out from in under the scales and roam about over the branches, seeking a suitable place to settle down for life. Frequently they are carried by the wind, or by the feet of birds, to other trees, and thus a badly infested tree may produce pestilence for the whole orchard. In two or three weeks they will all have settled down, each in his chosen place, there to insert his tiny beak and suck from the trees their vitality. Presently the scale forms over them, by the secretion from the surface of their bodies, and this becomes completely impervious by the month of August, so that no application at this season of the year would have any effect upon the life of the insect hidden away beneath it. Scraping the old bark from our apple trees in the winter and spring months is a very useful operation, as it also removes a large number of the scales, and gives a smoother surface for the application of washes later

on in the season. An effectual remedy for this louse, which is very wide-spread and is doing incalculable mischief to the apple orchards in Ontario, is the application of soft soap to the parts affected, during the first week in June. This may be done with a scrubbing brush, or even with an old broom, if only the trunks are affected ; but if the insect has spread itself over the branches of the trees, it will be necessary to spray with a strong mixture of soft soap and water. The mixture may be improved by the addition of a crude carbolic acid. Prof. Cook advises the following method of preparing it : One quart soft soap and two gallons of water heated to the boiling point, when one pint of crude carbolic acid is added, stirring the solution at the same time. Kerosene emulsion, and washing soda in water, are also excellent.

THE CHERRY AND PEAR TREE SLUG is only too familiar to our pear growers. It is a brown larvæ, covered with slime, and possessed of an excessive number of legs, between eighteen and twenty-two. These ugly slugs eat only of the cuticle of the leaf, thus causing it to turn brown in three or four weeks. They pass down the tree and form their cocoons in the ground, from which the tiny black flies, less than a quarter of an inch long, emerges either in the month of August, or of June, of the following year. One of the best and easiest applied remedies for the pear tree slug is liquid hellebore, made by dissolving one pound of the powder in twenty-five gallons of water. This should be sprayed over the affected trees as soon as the larvæ appear. This substance has the double advantage of killing the insect by contact as well as by being eaten.

THE SLUGS or worms which eat the foliage and fruit of the gooseberry bushes, belong to another species of the same family, and may be destroyed by the application of the same remedy. The cocoons of these are hid among the roots of the bushes, and, when buying from nurserymen, great care should be taken not to introduce the insect upon one's premises with the plants. This habit of making their transformations under the ground, near the roots of the plants, no doubt explains the success which some of our subscribers have had in ridding themselves of the currant worm, by a liberal application of ashes along their rows of currant bushes, for these no doubt are distasteful to it. When only a small quantity of the liquid is needed, it may be made by mixing it in the proportion of one ounce of hellebore to two gallons of water.

THE BORERS.—There are three kinds of borers, all of which are only too commonly met with in our apple orchards, especially in those that are not kept in a vigorous condition. These are the flat-headed borer (*chrysobothris femorata*), and two species of the long-horned beetles, viz., *saperda candida, and saperda cretata ;* the first of these only remains one year in the tree, but the others con-

tinue feeding for three years; all three deposit their eggs during the summer months, and for this reason they may easily be prevented from damaging the trees, by washing the trunks with something which is distasteful to them. Soft soap is excellent for this purpose, and the addition of carbolic acid, in the manner recommended for the destruction of bark lice, is a still more effective remedy.

THE ROSE BEETLE has lately invaded Ontario, and is rapidly becoming a very serious pest, for it devours buds, blossoms, young fruit and leaves. Nor does it confine itself to the rose, but attacks also many of our choicer fruits as well. These beetles appear in swarms during the second week in June, and continue their mischievous operations for about a month. They are exceedingly difficult to deal with, but their attacks may be prevented to a large extent by dusting the foliage with ashes, road dust or plaster Paris. It is also claimed that their depredations may be entirely checked by spraying with pyrethrum water. One tablespoonful of pure powder is used, to two gallons of water, and the liquid may be applied with a force pump. In the use of the insect powder, it is well to remember that it kills by contact, and therefore must be applied in such a manner as to reach every insect.

THE BUD MOTH is a comparatively new insect in this province, but during the last two or three years we have noticed it quite frequently eating out the inside of both the leaf and flower buds of our apple trees, and sometimes attacking the buds of the young grafts, causing them to fail, which is a serious damage. These insects appear in the early summer and deposit their eggs on the apple leaves, upon which the larvæ feed as soon as hatched. These are about half grown when winter sets in, and hibernate in that stage, so that they are ready in early spring to feed upon the young buds. The easiest way of destroying these caterpillars is by spraying with Paris green water in the proportion of one pound to two hundred gallons of water. This application will also destroy the young tent caterpillars, or any other leaf-eating insects which may be hatched out at this season.

In the vegetable garden, there are two very destructive insect enemies, concerning which we have frequent inquiries, viz., CABBAGE WORM and SQUASH BUG. The habits of each are too familiar to need any description.

The cabbage worm comes from the eggs of the White Rape Butterfly, and these butterflies appear in two stages, the first in July and the second in August. Pyrethrum powder in a liquid form, as described above, is the safest and best application to use, but it must be applied with great force so that the liquid will reach every part affected. Some writers recommend the use of Paris green water upon cabbages at an early date of growth. This no doubt would be quite effective in destroying the cabbage worm, but we should also fear for the life of human consumer.

The squash bug hibernates during the winter in a mature state, and is therefore ready for its mischievous operations by the time the melon and squash vines show themselves above the ground; and their rapid increase and terrible destructiveness are the vexation of every gardener. One of the best methods of preventing their attacks is a tablespoonful of kerosene incorporated with two quarts of gypsum (plaster of Paris) and sprinkled on the vines. One application may suffice for the season, but it should be repeated if the bugs are seen to return.

MALAGA GRAPES.

"The grapes that are sold in New York and other markets as Malaga grapes," said a fruit dealer, "are really not Malaga grapes at all, but are a grape that grows in the almost inaccessible mountain regions of Spain, in the district of Almeria. The true Malaga grape is so tender and delicate a fruit that it will not stand shipment well, and even when it arrives here in good condition, it is so perishable that unless quick sales are made the importer will have his labor for his pains. Nearly all of the Malaga grape crop is made into raisins. The white and pinkish-white grapes sold here as Malaga are a hardy fruit. The region in which they are grown is wild and primitive, and the grapes are all transported from the vineyards to Almeria on donkeys, a distance of fifty miles, there being no roads to the hills.

The country between Almeria and the vineyards is infested by wild beasts and outlaws, and tourists have not yet ventured to include that part of Spain in their wanderings. As the average grape crop of the district is 400,000 barrels of forty pounds each, the task of carrying it all that distance on donkeys may be imagined. The vineyards are all small holdings, and yield about five tons to the acre. The usual price for the grapes on the wharf at Almeria is nine cents. The packing in barrels is all done at the vineyard, the fine corkdust in which the fruit is packed being backed in on the donkeys the same as the grapes are brought out. The harvesting of this unique grape crop is done during August. The vessels in which the grapes are shipped from Almeria cannot come in to the wharves, but lie at anchor some distance out. The grapes are taken to the vessels in row-boats of antique pattern and small capacity. The grapes begin to reach New York about Oct. 1. This market handles from 150,000 to 200,000 barrels of the fruit. It is bought by the local dealers from the importers at auction sale. These grapes will keep well from the close of one season to the opening of another. It is rare that the importers close out their holdings in them before April.—*Sun.*

WESTERN NEW YORK FRUIT GROWERS.

THE report of the twenty-sixth annual meeting of this Society, which was held in January, has been printed with unusual promptitude. Its pages are full of interesting and useful information. The fruit growers of Western New York are at the very forefront in all the departments of fruit culture; and since their climate corresponds with that of Southern Ontario, their experiences are of especial benefit to us.

INSECTS AND FUNGI.—Some interesting particulars were brought forward under these heads, some of which have been already summarized in this journal. Dr. J. A. Lintner criticized a statement, made at the meeting of the Ontario Fruit Growers' Association, that a valuable plum orchard had been utterly ruined by the use of London purple. In his opinion, the injury, which resulted in the falling of the foliage, was not due to the spraying, but wholly to a fungus attack. Prof. Bailey, he said, has sprayed plum trees with one pound of London purple to two hundred gallons of water, without injuring the foliage in the slightest degree. By the addition of lime to the arsenities, the injury, which these poisons might otherwise do, could be entirely avoided, and they could then be used upon the most tender foliage, such as that of even the peach tree. The lime is prepared by slacking it in a barrel and stirring it afterwards until the water becomes quite milky, up to the degree that it would not clog the nozzle of the sprayer.

Several experiments had been made with limed arsenical mixtures on the cherry, apple, plum and peach, using one pound of the London purple to one hundred gallons of water, and the injury was but the trifling amount of one per cent.

Professor Gillette had been experimenting with London purple in the Bordeaux mixture and had been unable to produce the least harm upon peach or plum foliage, even when he used one pound to fifty gallons. Indeed one pound to twenty-five gallons did not harm the plum foliage, and one pound to ten gallons caused no damage to the apple.

GRAPES, OLD AND NEW.—An interesting paper was read by Mr. W. C. Barry upon this subject. He characterized the Worden as one of the most important of the recent acquisitions, and one which was destined, in some localities, to supercede the Concord; it ripens a week earlier, is of better quality, is as vigorous a grower and as productive.

The Barry he prefers to the Wilder, and considers it especially valuable as a market grape on account of its remarkable size and its handsome appearance, combined with good quality.

The Vergennes was worthy of a place in our vineyards, being of a large size, good quality and of sufficient firmness to make it an excellent shipper.

The ideal red grape, however, has not yet been produced. What we need is a red Concord, and a rich reward awaits the originator of such a variety.

In closing, Mr. Barry named the following six varieties as those which had given the best results in his vineyard for market purposes: Lady, Niagara, Barry, Concord, Worden and Gaertner.

Mr. T. S. Hubbard reported concerning grapes in Chautauqua Co., from which he stated there had been no less than forty-eight million pounds shipped during the past year, and these had sold at an average price of two cents per pound, bringing back to the county, for its grape crop alone, over $1,000,000. He stated that the crop was a very heavy one, many large vineyards of Concords averaging over five tons to the acre, and some Niagara vineyards yielding seven tons per acre; while one plot of less than two-thirds of an acre of Niagaras produced over six tons of fruit.

Our readers should beware, however, of running away with the idea that such enormous yields are at all the average crop. It is the exceptionally large yields that we hear so much about, while the reports of failures and small crops are usually kept in the background.

PEARS.—Mr. Cook, of Genesse Co., spoke in high terms of the Beurre Clairgeau pear, which is very prolific and adapted to a great variety of soils, the fruit was uniform in size, attractive in appearance, and, though not the best in flavor, regarded by many to be a very profitable market variety.

Duchess was highly spoken of by Hon. Eli Taylor. He stated that he had realized $1,000 from the product of two and a half acres. On the other hand, Mr. Babcock, of Niagara Co., stated that it was a general failure, even the best cultivated orchards being no exception to this rule.

The Keiffer pear was highly commended for its productiveness. Mr. Babcock, of Lockport, stated that from 220 Keiffer trees Messrs. Moodie & Sons has marketed 630 bushels in one season, and this was the fourth crop off trees seven years grafted. Mr. Bronson, of Ontario Co., also commended the Keiffer as one that never failed to produce a large crop and sell readily.

PLUMS.—Mr. Cook, of Genesse Co., had very favorable experience in growing the German Prune. He states that he has found an increasing demand for this variety, and believes its cultivation will become a most important industry.

The Grand Duke was mentioned as a very large new plum, and a variety which would soon become one of the staple orchard varieties. The greatest demand is for a kind that is either very early or very late, and the Grand Duke is a very late sort, ripening between the 10th and 20th of October. Ten-pound baskets of this plum have sold as high as $1.50 per basket.

The Field is a fine purple plum, ten days earlier than the Bradshaw, and very valuable. Trees, two years planted, were mentioned as being heavily laden with fruit, showing it to be both an early and an abundant bearer.

The Prince of Wales, ripening about the beginning of September, is a round, reddish plum of medium size; the tree is very hardy and a great bearer.

These three varieties are especially commended by the fruit committee of Ontario Co. as indispensable to plum growers.

SMALL FRUITS.—Professor Bailey commended currants as a profitable crop where one had good facilities for shipping, and was near a good market. He believed the Victoria to be one of the most profitable varieties, and it had this merit that it was comparatively exempt from the currant borer.

A Mr. Farmer, of Oswego Co., had great faith in strawberries. He had known $1,000 worth to be sold from one and one-third acres of ground in one season. The three best varieties, according to his experience, were the Warfield, Bubach and the Eureka. He has sold the Bubachs as high as 25 cents per quart, and the Eurekas were in quite as good demand. Both varieties are pistillate, and in reply to an enquiry as to what standard varieties were used with these, Mr. Farmer said, Wilson and Jessie with Warfield; Burt Seedling with Bubach; and Crawford with Eureka.

There were many interesting and valuable papers read at this meeting, and were it not for fear of making it too bulky, we are sure it would meet with the general approval of our membership to have some of the more important of them printed in the appendix of our own next annual report.

In reply to the question, "What are the six most profitable pears for market?" Mr. Zimmerman, of Buffalo, named the following: Bartlett, Howell, Beurre Bosc, Clairgeau, Duchess, and Anjou; Bartlett and Bosc as standards, and Howell, Duchess, Clairgeau and Anjou as dwarfs.

NEW ZEALAND APPLES.—The first arrival of New Zealand apples in this country since the experimental trial last year, should be a lesson to Canadian exporters. The utmost care was taken in their selection and packing, and the consequence is that they arrived in London in simply superb condition, the auction last Monday being well attended, and a spirited competition resulting in extraordinary prices being fetched, 25s. being reached as the top price per bushel case. Freight for 140,000 bushels has been engaged for this year for Tasmanian fruit, and with this competition New Zealands will have to climb down a little; but the consignment mentioned came upon the market when it was absolutely bare of anything of quality, and its fine appearance compelled good prices. Will Dominion shippers learn the lessons, and exercise more care in selection and barrelling next season?—*Trade Bulletin.*

JESSIE.—Foliage showing signs of rust, produces runners freely. Fruit pleasant and sweet, but not of high quality; large, somewhat inclined to irregularity; many specimens singularly furrowed or crinkled, in some cases to the extent of absolute ugliness. Quite firm, and single berries very large. The fruit comes large to end of season. Season medium. It would not rank among the first for market here.—*Popular Gardening.*

LETTERS FROM RUSSIA.—VII.

Exhibition of Fruits at St. Petersburg.

N the month of October, 1890, the Imperial Society of Horticulture held an exhibit at St. Petersburg. The department of fruit growing and decorative horticulture was excellently arranged through the efforts of the skilful gardeners who have charge of the well stocked hot-houses in that city, but, on the other hand, the section of fresh fruits was a comparative failure, there being only some forty-two exhibitors.

The finest fruits were those shown by Polish growers, and particularly those from the Warsaw State Pomological Garden, which received very high commendation. All the Polish fruits were correctly named, well formed and large, whereby one would judge that fruit growing in Poland is in a good and prosperous condition. The fruits, however, were mostly tender varieties grown under glass, few native sorts being among the exhibits. Among these latter were some pears, and a winter apple under the name of Glogierowka (of pigeon class). It is a very beautiful apple of excellent flavor and the fruit growers of Warsaw consider it to be one of the best of their hardy and productive dessert sorts.

From Lithuaniax and Western Russia there were very few exhibits, none worthy of special mention. Crimea showed very few fruits from her commercial gardens ; her exhibits were mostly French varieties of pears, peaches, grapes and nuts, which are exported into the northern districts. Of apples there were some very good local varieties of the Synap, and two very beautiful and delicious Crimean apples, Gulpembe and Chelebi, scions of which I sent you, also a large filbert, known here as Bomba.

From Caucasus there was only one exhibitor, who showed some forty-six varieties of apples and twenty-four of pears ; most of these were local kinds. Of pears, one variety attracted everybody's attention on account of its enormous size, the Tash-Armud, a local tartar name. It is an excellent, juicy, autumn pear, of about three pounds weight. Caucasus is little known in pomological circles, and it is interesting to know that many quite new sorts of excellent fruits grow there, some without any culture, and even in its forests. In course of time, this country, owing to its favorable climate, will become one of the principal centres for growing apples and grapes ; even now it exports a large quantity of wine into France.

The exhibitors of Russian fruits from the northern governments were very few, and from some there were no representatives. In all the exhibits were met such wide spread and popular varieties as the Antonovka, Borovinka (Duchess), Titovka, Aport (Alexander), Anis, etc. These typical kinds are known and distributed throughout the whole of Russia, and have reliable names, but other

and less known varieties have numerous local names. The most beautiful and perfect apples were from Tula and Luga.

A large collection of apples were exported from the garden of Doctors Regell and Kesselring. Fifty-three of these varieties were seedlings of Dr. Regell's own raising. The fruits were small and poorly colored, and would not tempt anyone to go into fruit growing in the climate of St. Petersburg. From such a prominent pomologist as Dr. Regell, we were really expecting something better.

The following are some of the Russian fruits, among those exhibited, which I consider worthy of mention :

1. From the government of Riasan there were three beautifully colored seedlings of the type of the Crimean Synap, and of the true Chernigow. In your country, and almost everywhere abroad, this apple is known as Borovinka (Duchess.) These apples differ in this respect that the Borovinka is much superior to the Chernigow.

2. From the same government a kind of Anis, the calix of which is closed entirely.

3. From the Kasan some new local varieties, among them a good-sized Siberian crab.

4. From Chernigow a winter apple, Woloshka, of good quality, resembling Titovka.

5. From St. Petersburg government Aport Riepchatz, a special kind of Aport (Alexander) ; Metla, a new sort ; two varieties of Stone Antonovka, one an oblong and the other flat. Besides these, there was exhibited a red autumn plum, growing freely without winter protection.

The whole exhibition was of no special use to Russian horticulture, excepting to the exhibitors themselves, who received a large number of rewards.

The earnest fruit growers expected that by means of such a large collection of Russian apples from the whole of Russia, it would be possible to establish, once for all, a correct nomenclature, and thereby put an end to the chaos of names given them at the whim of gardeners ; but the Imperial Society of Horticulture, upon which rests the responsibility of conducting its provincial divisions, did not stir up this important question. It is therefore set at one side, possibly for a long time, and in consequence nobody is in a better position than before to judge of the most suitable kinds for each government of this empire with respect to the hardiness and other qualities of the several varieties, a thing which is of the utmost importance to our country.

PLANT A VARIETY OF FRUITS.

SCARCELY a week passes but I am in receipt of letters from parties seeking information as to what they should plant. The apple crop of late has become quite uncertain, and some other fruits not much better, and this question as to what to plant for profit, is certainly deserving more than a passing notice. When we have a crop of apples the price is frequently too low to be remunerative. Have we not been planting too many Baldwins? is a suggestion that has frequently come to my mind in the past few years, and would it not be wise to graft over some of our thrifty young Baldwins to choice eating sorts that would find ready sale on our city fruit stands at prices that would amply compensate you for the change? Try the Stump, McIntosh Red, and Suttons's Beauty, all varieties of the choicest quality and beautiful in appearance, and see if they do not pay. There may be others with which you are acquainted that are even better. For myself, I should regard it unwise to confine my efforts to any one kind of fruit. In other words, in planting for profit, I would put out a variety, including more or less of the smaller fruits, the limit of which would depend in a measure upon the land at my command, its adaptability for the purpose wanted, and facilities for reaching markets economically and in good time. Where the soil were suitable, I would plant peach, plum, cherry and quinces, with a reasonable amount of such smaller fruits as might be worked in to advantage and sold at markets not too far distant from home. I know of one party not seventy-five miles distant, owning a fine young apple orchard of fifty acres, who said to me a few weeks since, "Had it not been for my blackberries in connection with a small crop of pears and plums, I should have been compelled to borrow money to meet current expenses for the year," referring in this to the past season. Yet another with seventy acres of orcharding, from his currants, gooseberries, cherries and quinces realized $2,500, while his apples, plums, and peaches, which heretofore have been his main dependance, yielded him nothing. A third party with a large planting of apples, plums and quinces, found his cash in hand from a fine crop of quinces. Instances might be multiplied showing the very great importance attached to growing a variety of fruits, in the attainment of the object sought. If this idea be correct, how many throughout this favored region have made a very great mistake! We think no wise farmer would for a moment entertain the idea of devoting his entire farm to any one product like corn, wheat or barley, no matter how well his soil be adapted to either.

Geneva, N. Y. S. D. Willard.

THE CULTIVATION OF STRAWBERRIES.

THE price of strawberries has come so low as to make it difficult for the average man with the average experience to make berry growing pay. Only those living near a good local market or growing a large quantity can make it pay at all. Four things are necessary in growing strawberries successfully.

First, the man must be thorough going and industrious, not lazy.

Second, he must have the right kind of preparation of soil.

Third, he must have the right kind of plants.

And, lastly, he must put out and care for the young plants properly.

I want to emphasize this point of thorough cultivation. No use of securing the right soil and the right plants, and then after six or eight weeks of hoeing and care, to allow the ground to grow up with weeds and thistles. We all have seen this kind of strawberry culture.

This difficulty does not occur with the man who devotes his whole time to this business.

Very little need be said as to the kind of soil. Strawberries may be grown on either clay or sand, although they will be later on heavy land.

Ground that has been used for growing potatoes or turnips, or some such crop the year previous, is desirable. When this cannot be had, the ground that is to be used in the following spring should be ploughed, not later than the middle of August, then kept well worked on top until the ground freezes up. Then apply your manure, which should be not less than twenty-five loads per acre. Spread it evenly on the ground, and leave until spring. The manure should be well rotted. Then in the spring plough five inches deep, by which process you have the strength of the manure evenly through the soil, and the young plant will start off vigorously. Work the top well, and finish by rolling. And if you are growing on a large scale, mark with a common corn marker four feet one way and three feet the other. Now secure your plants. It does not come under the head of my subject to tell the kind of berries to grow for profit. But I would insist on securing plants from new vines of one year's growth, and in taking up your plants care should be taken not to break the roots of the plants. A basket should never be used to carry the plants while planting, as the wind dries the roots of the plants much more than when carried in a wooden or tin pail, and in no case should the roots be allowed to dry. A drizzly or damp day is the best for planting.

I now use a spade for planting, by shoving the spade down about six inches, then shoving the top to and from you until the spade can be drawn out, leaving the ground sufficiently open to admit of the roots being put in straight down. Care should be taken to put the crown of the plant on a level with the top of the ground.

This should be done as early in the spring as the ground will admit of being worked. The plants, after planting, may stand for twenty days without any attention. Then cultivate the same way that you intend your rows to run; ten days later cultivate crosswise, following with the hoe, and being careful to remove every little weed, for if a weed is left until your hoe comes again, it will be large enough to disturb your plant being pulled. They now should be cultivated every ten days, one way, and should be hoed every time you cultivate crosswise, which would bring the hoeing every twenty days. As soon as the average plant has runners long enough to take root, the cultivator should be stopped crosswise, and the runners placed by hand one half each way. Put a little earth on them to keep the high winds from blowing them out of place. Then run the cultivator the one way every fifteen days, until the ground freezes up or becomes too wet with the fall rains to work longer.

I suppose it will be expected that I say something on the care of the plants during the winter. Young plants should be covered lightly with straw as soon as the ground freezes enough to admit of drawing the straw. This should be removed in the spring as soon as the plants show signs of growth. No more straw should be taken off them than to allow the plants to come up through without doubling their leaves. This will injure your plants.

I do not approve of spring hoeing and cultivating if the foregoing plan has been perfectly carried out. If this has not been done then there may be some excuse for spring culture. Now I must leave the plants until after the fruit has been gathered and marketed, as that does not come under the head of strawberry culture.

As soon as the last berries are picked, the plow should be put in and a furrow about four inches deep should be thrown each way from the row, leaving twelve inches. The weeds should then be removed with as little disturbance to the plants as possible.

In about twenty days (if it be not too dry) the earth may be put back, and the centre of the row well worked until it becomes too wet in the fall to work. I have cultivated with good effect in the first week in December. But it is seldom that it is dry enough on any heavy land to cultivate even in November.

Paris, Ont. D. M. LEE.

HOME MARKETS FOR FRUITS.—J. C. Gould: If we are to sell our fruit at home we must have enough fruit to get buyers to come. It was about three years ago before we could get them to come to Lawton, but now we find we can do better than to ship it. E. C. Reid: As Secretary of the State Horticultural Society, I have numerous inquiries as to where fruit can be bought. The number of buyers coming here is increasing, and, if we work the matter up judiciously, the buyers will all come and we will get better prices from the direct competition; and it is more satisfactory to sell your fruit at home and get your money.—*Discussions Michigan Fruit Growers.*

FRUIT PROSPECTS.

E hope, during the coming season, to post the readers of the CANADIAN HORTICULTURIST as fully as possible, both with regard to the prospective fruit crops of Ontario, and also with regard to the best markets for the disposal of the same.

Although it is yet too early to judge with any certainty, yet it is cheering to note that, for the most part, there is a promise of a fairly good fruit harvest.

In Southern Ontario there is a good show of apple bloom upon such varieties as the Red Astracan, Duchess of Oldenburg, Cranberry Pippin and the Greening, but, curiously enough, the Baldwin still continues to be obstinate and shows scarcely any bloom. The Ribston and the Russets also make a very scant show. Cherries of every kind appear to be unprecedentedly full and are set well Even the peach trees promise a heavy load of fruit, which is almost a surprise after so many recent failures.

The late frosts have done very little damage in the Niagara district except to some early strawberry blossoms which have been blackened by them. We doubt, however, if the fruits of the north have escaped so well. We will be pleased to receive the fullest reports from correspondents in every direction as the season advances.

The following are a few reports from other sections of Ontario :

Mr. T. H. Race, of Mitchell, writes : "Judging from the show of bloom, the fruit prospects are not particularly promising in this locality. Pear blossoms are very scant ; plums, on the contrary, very heavy. Apple blossoms are the lightest we have had for years All the smaller fruits promise favorably except the strawberries, which are kept back by the cold, dry weather."

Mr. G. C. Caston, of the County of Simcoe, says : "The prospects here, so far, are very good, but everything is very backward We have had frequent frosts, and early strawberries that were in bloom, have been cut off."

Mr. Thos. Beal, of Lindsay, in the County of Victoria, writes : "Apple, pear and plum trees look well. The frost has done no injury (May 20th). The small fruits all promise well except strawberries, of which the earlier varieties are badly injured by late frosts."

Mr. W. C. Searle. of Clinton, says : "I am afraid that the fruit blossoms here have suffered from late frosts. If any have escaped it is those which bloom late."

Mr. J. M. Waters, of Fernhill, writes : "Our winter here was very mild, and the fruit buds were in excellent condition when the spring opened, but we are having a succession of heavy frosts which have injured peaches, pears, cherries, plums, currants and strawberries to a large extent, while our grape vines have been killed back to the old wood. Very few interest themselves in fruit culture here, and were it not for the tree agent little would be done in fruit culture in North Middlesex '

Mr. D. Nicol, of Cataraqui, of the County of Frontenac, writes : "On all kinds of fruit trees the show of bloom is unprecedented. The late frosts may have injured some of it, but I cannot say to what extent."

Mr. W. H. Wylie, of Carleton Place, writes (May 28) : "Yesterday morning water in exposed places was covered by nearly one quarter inch of ice, and one day last week by nearly half an inch. Grapevines, leaves and buds, were frozen crisp. Plums have been injured and will be a smaller crop than at first anticipated. Currants and gooseberries promise well.

Mr. A. M. Smith, of St. Catharines : "Prospects of fruit : Apples light, only a few varieties blossomed ; peaches, fair ; pears, Bartlett's, light, hurt by frost ; plums, ditto ; berries and grapes uninjured on lake shore."

New or Little Known Fruits.

GREENFIELD'S SEEDLING APPLE.

SIR,—I send you to-day two seedling apples, the tree of which is grown by Mr. Samuel Greenfield, near Ottawa. The apple, it is said, will keep till *June* in a fairly cool cellar; the tree is as hardy or hardier than the Duchess, and it is a free and early bearer. You will notice the apple somewhat resembles the Spy in color and general appearance, the calyx, however, being more prominent. The apple at the present time is not ripe, being quite hard; the flesh is crisp and moderately juicy. I class it as fairly good fruit, about second class; but the hardiness of the tree, its early bearing, and excellent keeping qualities, ought to commend it for this and colder localities, even I think for Manitoba.

P. E. BUCKE, *Ottawa*.

FIG. 39.—GREENFIELD'S SEEDLING APPLE.

This apple is certainly rather attractive. It is a little small to be commended for cooking, and the quality is hardly good enough to make it a high class dessert apple; still its hardiness gives it a claim upon our notice, for the good winter apples, possessing this characteristic, are very few. On this account we have thought best to prepare an engraving of the apple for our pages, in order that a more exact record of it may be kept, than can be made in words.

DESCRIPTION.—Size, below medium; form, roundish, slightly conical, ribbed; skin, light green, washed and striped with carmine; stem three-quarter inches long, in a deep narrow cavity; calyx closed in a very shallow wrinkled basin; flesh white, crisp, tender, mild sub-acid, juicy; flavor poor, but scarcely mature enough to be fairly judged.

GREENFIELD'S CURRANT.

Mr. W. W. Hilborn, of Leamington, sends us two plants of a new red currant for testing. It was originated at Ottawa by Mr. Samuel Greenfield. Mr. Lowe, Deputy Minister of Agriculture, of that place, says it is by far the best red currant he has seen, either in Canada or England. Mr. Hilborn states that he has counted as many as twenty large-sized currants on a single stem, and that the bush is a strong grower and very productive.

The Garden and Lawn.

MORNING GLORYS.

LAUGHING sunshine, summer showers,
Freshen all our leafy bowers,
Each baby creeper firmly clings
To its tiny leading strings.

Morning Glorys ope their eyes,
And look up where the glory lies,
With steadfast gaze the livelong day,
Until the hour when cherubs say

"Our Father," and sweetly sink to rest
Until the hour of all the day the best,
The hour my gentle "angel boy"
Sprang from his little couch with joy,

To count his morning glorys o'er,
And laughed as "Flora" added more.
One day our darling did not rise,
His "glorys" gazed up to the skies,

Where he had fled on angel wing
Right to the "Palace of the King."
God knew his holy love for flowers,
And gave him everlasting bowers,

Where beauteous buds and blossoms spring,
When'ere they hear the seraphs sing,
As the morning stars together sang
When Eden was prepared for man.

GRANDMA GOWAN.

ROSES.

I HAVE just read S. P. Morse's excellent and timely article in the April issue of the Horticulturist, and have noted one point in it which will bear a little extension. He says that "there are nearly a thousand varieties of roses alone." The "Grand Dictionnaire des Roses," published by Max Singer at Tournai, Belgium, in 1888, contains detailed descriptions of over 6000 varieties of roses. Extensive European dealers offer as many as 2000 sorts in their commercial lists, and it is quite common for leading continental growers to exhibit 600 varieties in a single class, at the great rose shows. I remember that at a grand horticultural exhibition held in the Champs Elysees, Paris, a few years ago, the celebrated rosarians, Leveque et fils, of Ivry-sur-Seine, displayed a collection of roses in pots, comprising 1800 varieties. The plants, models of health and vigor, were in full bloom and filled the vast enclosure with their delicious odor. The section of Tea roses was represented by a collection of 600 distinct sorts, and one plant of the hybrid Tea, La France, bore 200 buds and open flowers. The general rose list of the world is constantly increasing, and new classes are from time to time produced by crossing the different sections; recent examples of which we have had in the hybrid Ayreshire and hybrid Rugosa. The French, English and German growers, now annually bring out about one hundred new sorts, principally seedlings, though many fine varieties are the result of dimorphisms or sports. To the latter freak of nature we are indebted for many choice flowers, such as Mabel Morrison, White Baroness, Pride of Waltham, Madame Louis Donadine, Duchess of Albany, Sunset, The Bride, and many others. As to the seedling novelties annually produced, only a restricted number ultimately achieve permanent fame; while the majority, from inherent defects, or lack of distinctive individuality, sink back into oblivion.

Raising roses from seed by the elaborate procedure of cross-fertilization, is now more common than in former times, and is usually more productive of satisfactory results than the old-time method of employing chance-bred seeds.

Not all the varieties produce seeds naturally; the number of such is limited; others bear seeds if artificially fertilized; while many are barren. Of the Hybrid Remontants, a few good seed-bearing sorts may be mentioned: Gen. Jacqueminot, John Hopper, Prince Camille de Rohan, Jules Margottin, Lady Suffield, Madame Victor Verdier, Marie Baumann, Victor Verdier, Fisher Holmes, Dr. Andry, Alfred Colomb, Jean Cherpin, Mlle. Annie Wood, Baron Bourtellin, Antoine Ducher, Beauty of Waltham, Baronne de Rothschild, and Duke of Edinburgh. In France, as a general rule, the seed is sown immediately when ripe, and germinates in from one to three months. The young plants often produce tiny flowers, in keeping with the lilliputian size of the plants, the first month, and indicate to a certain extent the color and future form of the flower, but it is not

till the second or third year, when it attains its full development, that a satisfac tory judgment can be formed of its beauty or merits, or that its imperfections may be detected.

In England, seedlings often bloom when not more than three inches high, and at the end of the second or third month; while others of the same sowing do not show their flowers before the end of the second and third year. It often occurs that from a batch of 2,000 seedling plants, not more than one or two prove worthy of propagation; hence it may be seen that a rosarian must be equipped with an inexhaustible fund of hope, patience and energy, to stoically endure the oftime discouraging results of his labor, and above all, he must be endowed with a boundless love for the rose.

A writer in the January issue of the *American Garden* gives an amusing account of his experience as a hap-hazard florist and nurseryman, and in an incidental way reveals a few modern trade secrets. He relates that, "When Enoch and I get orders for huckleberries and toad-flax, we do not bother to go to work and grow them, but go out in the cow-lot and dig them, and we can get ten dollars worth from a square yard, and leave enough for seed. Enoch and I have sold the cow-lot clean of weeds half a dozen of times already." There is a depth of wisdom, and a strong dose of sarcastic truth in this seeming exaggeration, for if we are to judge by some of the catalogues of the present season, the principle which animated Enoch and his master is being carried out almost to the letter. Two catalogues at the present moment *lying* on my desk sing the praises of one of the most insidious and irrepressible weeds I have ever met. The botanical name, *calystegia pubescens*, is given, to which is added the euphonious and alluring titles of "California Rose," "Double Pink Morning Glory," "Rose Vine," etc.

Several years ago, in an unguarded moment, I accepted a few roots of this treacherous humbug, from an enthusiastic friend, whose knowledge of plants was limited. Unaware of the shortcomings, or rather, the "longcomings" of the thing, I planted it. It spread over my garden with startling rapidity, and in a couple of years had almost taken complete possession of it. Then followed unceasing labor to eradicate the pest—a result not yet accomplished—for every fragment of root left in the ground, even if not more than an inch in length, forms the nucleus of an independent plant, sending out yards of slender snake-like roots in all directions, which crop up here and there in riotous and prolific vigor.

The feverish thirst to outstrip business rivals in the novelty line, leads some of our florists of the present day to play high stakes, *i. e.*, their reputation, in carrying on the game; for very few customers, who may be tempted to buy worthless plants, will, after such an experience as I have had with Calystegia, "rise up and call them blessed," "*au contraire*."

Yet there are truthful items in the elaborate description, for instance: "It is perfectly hardy"; not the shadow of a doubt as to that, in fact, it's too hardy

"When once planted, will live and increase every year;" true as gospel. "Beautiful as a pot plant;" well, yes, after mature reflection, I concede that a pot is the only safe and suitable place for it, and to make matters doubly sure, after it has been carefully potted in rich loamy soil, slightly mixed with bone dust, pitch the plant, pot and all, into a roaring furnace, in case you should not have a lime-kiln in full blast in the vicinity.

St. Féréol de Ponsonby, Que., May 1st. F. Lance.

Care of Oxalis.—The oxalis need never be cut down for lack of blooming capacity, for it will bloom on and on. But common sense teaches that if permitted to do so, it must in time exhaust itself. Therefore in May or June when turning some of the window plants out into the borders, and laying away others to rest a season, cut off all the leaf stems of the oxalis close to the earth; let the earth thoroughly dry for a week or two, then turn the whole out upon a newspaper and search the earth carefully, saving not only the old bulbs but all the tiny new ones. Three old bulbs may in one season throw out from two to four or more bulbs each; some of them may not be larger than half a pea. Old and new may be rolled in tissue paper and laid away in a dry place (so they may not sprout, as they will do in a moist spot) to remain until September. But as the young bulbs not having worked need no rest, my experience teaches that their season of blooming may be expedited and improved by setting them out in new earth and allowing the foliage (nip off the buds for five months) to put forth, and the bulbs to attain larger growth for winter blooming. If one saves, as he should, all the oxalis bulbs, he ought in a year or two to have enough of all varieties to have them divided into two distinct sets, winter and summer bloomers, thus giving each a season of rest. The summer bloomers may be set in the rockeries or in hanging baskets on the balconies. The earth should be fairly rich, and the bulbs covered to not more than the depth of half an inch. Set in a light place, but they do not like too hot a sunlight.—F. H.

A Beautiful Hedge.—For an ornamental deciduous hedge almost anywhere there is nothing to surpass it, if to equal, the Japan Quince (Cydonia japonica.) There are a number of deciduous plants that make pretty hedges, but the most of them are difficult to form and troublesome to keep in good shape and order. The Cydonia is almost entirely free from these objections, provided only that young plants be used to start with. What a lovely sight it is when in bloom, and how picturesque at all other times! Those who have a fancy for more than one color, can use the rose and white-colored to mix with the crimson. There is this farther to be said in favor of the Japan Quince, that scarcely any manner of neglect can spoil its beauty. It can be easily and quickly brought into shape again. It will always retain its beauty, though it may lose its primness by neglect to be sheared. No amount of shearing, however, can give it that hard, solid surface so common to evergreen hedges.—G.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

The South Haven Sub-Experiment Station, in charge of Pres. Lyon, was referred to on page 148. We are informed that the tract of land for special experiment is a portion of Mr. Lyon's own farm, and that it is rented, not purchased, by the Government. Mr. Lyon receives a special grant for his services.

The Larue Apple.—At our last meeting at Hamilton, Mr. G. C. Caston, of Simcoe Co., said that he has been growing this apple in his orchard for some years, and finds it to be one of the best for the market. It keeps with him until February, and brings a higher price than any other kind which he grows. Unfortunately it was affected somewhat last year with the apple scab, but it is not generally subject to this evil.

Delay in Issuing Local Fruit Lists.—Mr. N. J. Clinton, Windsor, complains of the delay in issuing lists of fruits adapted to various counties, a work which was placed in the hands of a special committee. He thinks it very important that they should be out at once. We regret to say that this work was in too crude a state at our winter meeting to be suitable for publication; it will, no doubt, be completed before the next meeting, and printed in our next annual report.

Fruit Growers Rejoice.—A grand discovery, so says Prof. J. A. Lintner, State Entomologist for New York. He shows that Paris green and London purple can be used of double or treble strength if mixed with lime water, and no evil results will follow. If the Bordeaux mixture be used as a dilutant instead of lime water, the poisons can be applied four times as strong as if only pure water be employed. London purple should not be used on the peach unless

diluted with 500 gallons of water to the pound. This poison is more likely to injure the foliage of fruit trees than are the other arsenities, being more readily absorbed by the leaves.

A Remedy for Apple Scab.—The most approved fungicide and the most economical one, which has yet been suggested for destroying the apple scab, is ammoniacal carbonate of copper in its improved form. It is prepared as follows:

3 oz. carbonate of copper,
1 lb. carbonate of ammonia, and
50 gallons water.

Mix the carbonate of copper with the carbonate of ammonia, pulverized, and dissolve the mixture in two quarts of hot water. When they are wholly dissolved, add the solution to enough water to make the whole quantity fifty gallons.

The carbonate of ammonia can be purchased at 15 cts. a pound, and therefore the cost of the whole fifty gallons of this mixture, counting the copper carbonate at 60 cts. a pound, would not be more than 30 cts.

The Russian Apples.—We feel sure that the Russian apples sent out this spring will give satisfaction. All except the Golden White were grown by Mr. Craig at the Experimental Farm, Ottawa. They were all rooted, and have come to us in good order, and we hope our subscribers will have success with them. The following is a list of the varieties sent out, additional ones being added because there were not enough of the Sari Synap and Stone Antonovoka: Plodovitka, Arkad, Sari Synap, Stone Antonovoka, Titovka, Lebedka, Kara Synap Golden White, Polu Miron, White Pigeon, Round Borsdorf, Winter Stripe and Saccharine.

Lawson Valentine.—The death is announced on the 5th of May, of Mr. Lawson Valentine, at his home, Houghton Farm, Orange Co., New York. To many of us, this gentleman is known as the moving spirit in the publication of the *American Agriculturist*, *Rural New Yorker* and the *American Garden*. His capital had been made in mercantile life, but as a matter of choice, he had devoted himself latterly to experiments in agriculture on a large scale on a tract of land which he named "Houghton Farm." Here he had proposed to conduct experiments after the manner of those carried on by Messrs. Lawes & Gilbert, of Rothamsted, Eng, purely from philanthropic motives. The loss of such men seems like a universal calamity.

Fruit Inspection.—The Committee of our Association to whom this subject was entrusted at the winter meeting last December, interviewed the Hon. John Carling, the Minister of Agriculture for the Dominion, on Friday, May, 1891.

It was shown that Canadian apples were in danger of losing the high reputation they now hold in foreign markets, owing to careless packing and want of uniformity in grading. Growers could not sell by letter to distant buyers without being wholly at the mercy of the latter, should any dispute arise regarding quality. What is needed is a uniform system of packing and grading, and thoroughly qualified inspectors, who could by inspecting every tenth barrel, more or less, satisfy themselves regarding the grade and condition of a car-load of apples, and brand them 1 or 2 accordingly. Every barrel should have grower's or packer's name and the inspector's brand should include the words Ontario, Canada, or Nova Scotia, Canada, as the case might be, with the grade No. 1 or 2 of the contents. Although this would not be compulsory upon the shipper, yet the inspector's brand would so win the confidence of buyers and a consequent high price that very soon no one could afford to export apples without first submitting them to inspection.

The whole matter was most favorably considered by Mr. Carling, and we feel quite encouraged to hope for some action to be taken at an early date.

Question Drawer.

TO PREVENT GRAPE MILDEW UNDER GLASS.

SIR,—**What is the best preventive of mildew on grapes grown under glass?**

J. M. MCAINSH, *West Nissouri.*

Reply by Mr. John Craig, Experimental Farm, Ottawa.

One of the first essentials in seeking exemption from mildew in growing grapes under glass is a well-drained soil. If situated on a gentle slope with a gravel subsoil, making artificial drainage unnecessary, so much the better.

The fungus spreads rapidly in a moist, warm atmosphere, and is greatly checked in dry air, and also by heavy syringing with water, which washes away the spores.

The powdery form (*oidium tuckeri*) of mildew, most prevalent in grape houses is entirely external in its habits, and yields readily to the application of flowers of sulphur. All dead leaves should be removed and burned, to destroy the conidia, or spores. Flowers of sulphur form a complete and thorough cure, as they destroy the parasite without injuring the vine. The sulphur should be dusted on the vines when growth begins, again when the blossoms open, and again when the grapes are beginning to ripen. Mr. Nicholson, of Kew Gardens, says, in a forcing house the heating flues may be washed with "a mixture of ¼ lb. each of flowers of sulphur and of quick lime, in three gallons of water." The fumes emitted kill the fungus. The door of the house should be kept closed for eabout an hour, to retain the fumes, and thn the place should be well aired.

The downy mildews represent a more difficult family of parasites to treat uccessfully, the tissues of the host plant being penetrated by the mycelium of the fungus. As in the former case, all dead leaves and prunings should be burned.

The following remedy has been used with considerable success : it is prepared by boiling 1 lb. of flowers of sulphur and 1 lb. of quick lime in 5 pints of water in an earthen pot for ten minutes, stirring constantly ; when it has settled the clear liquid is poured off. The plants should be syringed with a mixture of this preparation in one hundred parts of water. This will kill the outside and fruiting threads, but the internal mycelium renders a thorough cure very difficult.

I had excellent results last season in treating downy mildew on outdoor grapes with the ammoniacal copper carbonate 2 oz. to 25 gallons of water, and would recommend a trial with this under glass. When it is not readily procurable, the Bordeaux mixture can be used with equally good results, as demonstrated by experiments by the Department of Mycology at Washington last year. Formula for preparation as given in Horticulturists' Rule Book : Dissolve 6 lbs. of sulphate of copper in 16 gallons of water. In another vessel slake 4 lbs. fresh lime in 6 gallons of water. When the latter mixture has cooled it is slowly poured into the copper solution, care being taken to mix the fluids thoroughly by constant stirring. Prepare some days before using. Stir before applying.

NUT TREES FOR WIND BREAK.

Would you oblige me with information as to the value of nut trees as a wind break. Do they grow well on sandy soil? Would the walnut or filbert screen an orchard from the wind as well as pine? Would the catepillars that infest the walnut be likely to attack peach or other trees, when having distroyed all leaves on the nut trees? Please give me advice as to planting ; and the distance apart the trees should be set?

WM. CLAPTON, *Fenwick, Ont.*

Reply by Hon. H. J. Joly, Quebec.

In answer to the enquiries of yours of the 10th inst, I do not think the Black Walnut fit for a wind break. Its leaves come out too late and drop to early, and its branches are too easily broken off by the wind, and even by very heavy summer rains ; in fact, it requires shelter for itself against the storms instead of affording it to other trees. The spruce or pine are much better for the purpose.

You ask "if the Black Walnut would grow well on sandy soil?" I certainly would not select it for planting on such soil, except as an experiment which ought to be made. Its favorite home in the west is the deep alluvial soil. I have only tried it near Quebec, on clay soil and on some islands formed at the mouth of a river, by successive deposits containing, with a large proportion of sand, other elements of much richness, which make it very different from ordinary sandy soil.

We have found our young Black Walnuts very free from caterpillars at a season when the apple trees in the orchard close by, are covered with patches of

young caterpillers which require vigilance to keep them from spreading. At that season there are no caterpillars on our Black Walnuts. Later on a very few may appear, but in such small numbers that it appears as if, so far, the Black Walnuts have found no special enemy in their new home. The strong aroma emitted by their leaves may tend to keep away caterpillars.

GOOSEBERRY FRUIT WORM.

SIR,—Last year our currants and gooseberries were webbed together by some insect with a web resembling a spider's web. When the fruit was ripe, a green worm resembling a cabbage worm was found. Fully one-half the fruit was destroyed.

SUBSCRIBER.

This pest is no doubt the gooseberry fruit worm. According to Mr. Saunders' "Insects Injurious to Fruits", it spins its silken cocoon in the leaves or rubbish and remains in a small brown chrysalis until the following spring. In the month of April the moth appears and deposits its eggs in the young gooseberries soon after they are set. As there is only one brood during the year, they may be more effectually destroyed by hand picking, particularly as its habits are such that its presence can be easily detected. All berries coloring prematurely should be examined and the larva destroyed before it escapes to the ground. The leaves or rubbish under the bushes should be gathered and burned and the ashes scattered freely over the ground in their places. Dusting the bushes freely with air-slaked lime early in the spring helps to deter the worms from depositing their eggs on the young fruit as it forms.

PLUMS FOR LACHINE, QUEBEC.

Sir,—Would you please advise me what kind of plums would do for this district; an early, medium, and a late variety? The kinds I see mentioned for South Ontario are too tender here. The Damson bears well but is not profitable. Are those western kinds—Weaver, Mariana, DeSoto, etc.—of any decided merit? I have planted some Moore's Arctic, but have seen it unfavorably spoken of lately.

C. P. NEWMAN, *Lachine Locks, Que.*

Reply by A. A. Wright, Renfrew, Ont.

In reply to Mr. C. P. Newman's letter, asking for information about Weaver and DeSoto plums, I can state that they are undoubtedly good varieties for northern latitudes, not only as regards hardiness and productiveness, but also as regards quality. Mariana, I know nothing of. Moore's Arctic is too tender for us here, but doubtless will succeed with him. But Mr. Newman is in a very favored locality—considering his northern latitude—for, owing to his insular position, and consequent exemption from early fall frosts, he can grow varieties that would be perhaps more saleable than any of these above mentioned. For example, Corse's Great Bearer or Bradshaw, both dark color, for early, or, if he prefer a yellow, take Yellow Gage; Admirable, for medium, and Victoria, for late.

Mr. Jas. Brown, of 775 Craig St., Montreal, has a very remarkable plum. It is not on the market, but doubtless cuttings could be got, and Mr. Newman could do his own grafting. It begins to ripen about the 15th of August, and continues ripening for a month, the ripe fruit dropping off as they mature. Some years ago there was a very superior variety of Damsons grown on the farm of the late Dr. Leitch, near the Blue Bonnets, and I have no doubt he could get some of these there. In fact, I see nothing to hinder Mr. Newman from growing any of the standard varieties. If he would only attend the exhibition of the Montreal Horticultural Society this fall, and see for himself the magnificent fruit that will doubtless be on exhibition there, and consult with either Mr. Brodie or Mr. Shepherd, who are always in attendance at these exhibitions, he will have no trouble in selecting the varieties best suited to his wants.

USE OF LONDON PURPLE.

SIR,—The subjoined letter is clipped from the *London Advertiser* :

"Having heard that Mr. Flint, of Byron, had a very large crop of apples last season, of which an unusually large portion was fit for shipping, I called on him to find out the method he adopted to obtain such desirable results, and found that he sprayed his trees only once with a weak solution of London purple in the month of June. Mr. Flint is so well satisfied with the result of his experiment that he will treat his trees in the same way the coming season. "Yours truly, "M. K."

What better for spraying purposes, or any other purpose, is London purple than Paris green, and what effect can either one of them have as a remedy for blights, such as we had last year? T. H. RACE, *Mitchell.*

The relative merits of London purple and Paris green, for spraying the apple and pear for the destruction of the Codling moth, has over and over again been discussed in this and other fruit growers' journals, and the conclusion is in favor of the Paris green. Both are arsenical poisons ; the London purple is the refuse product from the preparation of aniliné dyes, and is exceedingly variable in strength. For this reason it is not so reliable as the Paris green, which, if unadulterated, is more constant in its percentage of arsenic.

Neither Paris green nor London purple could have any effect as a remedy for the blight or the scab upon our fruit trees.

TREES HOLDING FOLIAGE.

SIR,—Is it any advantage for a tree to hold its leaves late in the autumn, and if so, what? W. E. TAYLOR, *Beaverton.*

Trees cultivated during the summer and late in the autumn will usually hold their leaves much longer than those which grow in the sod, or in uncultivated ground. Trees of which the wood is tender should not be kept growing late in the season, lest they do not reach a sufficient degree of maturity before the winter sets in ; therefore, in such cases, cultivation should cease early in the autumn.

PEAS AND BEANS ON THE SAME GROUND.

SIR,—How many years should peas and beans be grown on the same ground?

W. W. R. *Toronto, Ont.*

Reply by Mr. J. J. H. Gregory, Marblehead, Mass.

I cannot say from actual test. Peas when the seeds are ripened are more exhausting than when picked green. A neighbor tells me his experience. He planted peas to eat green ten years in succession on the same piece of ground. The first three years the yield was the same, the next five years the yield began perceptibly to decline, and the last two years they were nearly an entire failure. They were manured and treated the same each year.

Open Letters.

TRAINING GRAPE VINES.

The subject which I wish to bring before the notice of your readers is a subject which I have often seen information asked for, namely: What is the best plan to train grape vines?

Now, sir, in order to get at the best mode we must consider the requirements of the plant in question. The principal things, in my estimation, are, first, sunlight; second, every branch equally exposed to the dew; third, its adaptability to laying down for winter protection; fourth, exposure to high winds and gales; fifth, expense and general utility.

Now, with regard to the old-fashioned method of high posts and wire stretched one above the other, or strips nailed on, as the case may be, and the vines fastened to them, I think you will agree with me that it does not give to every branch equal sunlight, nor equal dew.

If you look at vines so trained, you will see the largest grapes and the strongest growing wood at the top of the trellis and oftentimes those at the bottom are only half the size.

Now, the flowing sap in the grape vine is like hot water in the hot water pipes, the highest pipe in the house always works the fastest (providing the pipes are of equal size) and if we want each branch of the grape vine to grow alike, we must train each individual branch on the same level or distance from the ground.

Now, in the method which I propose, I would take four or five wires (you can use any number of wires) and stretch them side by side, say eight or ten inches apart, (distance according to number of wires used).

As all climbing plants grow best towards the south, we will suppose a row of vines planted running north and south, this will require two strong posts at each end. At the north end place one post in the ground on each side of the first vine from three to four feet apart according to the number of wires used. Now, place two in the ground at the south end, same distance apart, but ten feet beyond the last vine, to allow for growth of vine in that direction In case of a long row it will require some central support to carry weight of wire and vines. I would suggest two small posts placed opposite each other, and in the center between two vines. Now saw off all posts 16 or 18 inches from the ground. The next thing required will be crossbars for each set of posts, pieces say, 2x2, the two end ones to be let into the posts at the back, the center ones can either be nailed on top or dovetailed in, the latter being most convenient for future use. Now fasten your wires to end crossbars, placing them underneath the bar, but over all the centre ones. The strain coming on the underside of the end bar will tend to keep it in place without nailing. The idea being, that when you want to lay down your vines for winter protection, if the cross-

bars are all dovetailed in, you have only to lift them out of their place and everything drops to the ground, so that an acre of vines can be made ready for covering in about an hour, which is a great advantage over the old method, having to untie them all from the trellis, and in the spring after the covering is removed you can lift everything back into its place. The vines should be made to grow all one way and two or even three branches may be tied to each wire.

I think it will be seen at a glance that this method gives every branch perfect sunlight and full exposure to the dew, and that it is the best for convenience in laying down for winter protection, and that the vines are not so much exposed to winds and gales as the old-fashioned method of upright trellis, and I don't think the first cost will be any greater, while the labor saved every fall and spring will be considerable.

There are some other points also which I claim for this method, which I think are of considerable value. You will have noticed that, unless the vines are well pruned back every year, there is very little foliage near the roots. Now, if the vines are planted near enough together, the tops of one will in a few years cover the roots of the other and form a perfect shade for them, which, in my mind, is necessary they should have. I have noticed that in laying down vines, if the wood is several years old it is almost impossible to bend them down without a certain amount of injury being done to the wood. Now, in my plan, the vines are started in a slanting direction, and the bending is very slight.

I send you this, Mr. Editor, and if you think it worth inserting in the HORTICULTURIST for the benefit of those who live in districts where it is necessary to cover vines for winter protection, please do so.

E. LANE, *Galt.*

PRICKLY COMFREY.

Dear Mr. Editor,—Having read carefully Mr. A. G. Heaven's remarks on Prickly Comfrey, I feel it my duty to give your readers the benefit of my experience with the above forage plant. Four years ago last March I agreed, after a good deal of persuasion by an agent from Michigan. to invest $5 (which was only one-third of the supposed value; the other $5 to be called for in the fall) in Comfrey root, which was shipped to me the following month, C. O. D., per Detroit. I prepared the ground and planted similar to Mr. Heaven's direction. It grew fast, answering in thisparticular everything the agent represented it to do. But alas! when I came to cut and feed it, the cows would not touch it, nor yet the horses. But I was not satisfied with one trial; I tried and tried again, thinking I might get them to cultivate a taste for it, but it was like teaching some English people to eat tomatoes, for I have never yet seen them eat a mouthful of it. We left it in the ground for two seasons, and then I ploughed it out. I am told the root is used for medicinal purposes, but the amount the druggists use is limited. The agent called it Caucasian Prickly Comfrey, but, from the description Mr. Heaven gives of the growth of the plant, I think it is identical with those I experimented with.

N. J. CLINTON, *Windsor.*

TASMANIAN APPLES.

Sir,—The prospects of fruit here seems very uncertain. The season is backward, and we are still having very cold winds, and the trees are not yet in blossom.

It may interest you to know that this season there will arrive in England 140,000 cases of Tasmanian apples. This fruit is brought in the mail steamers from Hobart, in refrigerators, and, as a rule, arrives in very fine order. The cases contain about thirty-six or forty pounds of fruit, and they consist principally of King Pippins, Ribstons, Blenheim Oranges and Scarlet Nonpariels. all soft fruit. They reach us as if freshly gathered.

The fruit consignment of 800 cases sold at prices varying from 14/ to 20/ per case. The second arrival of 12,000 cases this week realized from 9/ to 15/. The next steamer brings 25,000 cases.

Although the prices may appear high, the incidental expenses are tremendous. The freight, cost of case, packing and incidental expenses alone amonnt to 7/6, and this without the cost of the apples.

GARCIA, JACOBS & CO., *London, Eng.*

SURE DEATH TO THE CURRANT WORM.

Mr. Editor,—I often have read of recipes with the above heading, but lacking in details. I think the following will fill the bill, as I have tried it with success :—Take one pound of good white hellebore, and to take all the goodness out of it, pour a pint of boiling water over it ; let stand till it cools. Now take about three tablespoonsful of flour, make a thin paste of it and mix it with the hellebore tea, put into a patent pail, and fill up with water. Apply with a hand-broom or syringe. The paste makes the hellebore adhere to the foliage, so that no ordinary rain will wash it off.

W. S. TURNER.

GRAFTING THE MULBERRY.

SIR,—In the April number of the HORTICULTURIST the question is asked, what kind of fruit can be grafted on the Russian mulberry? You can graft Downing's everbearing mulberry, or the Black English on it with success. We have some here that made four feet of growth last summer, grafted on the Russian stalk.

WM. WALLACE, *Ridgetown*.

Our Book Table.

REPORTS AND BULLETINS.

BULLETIN No. 10 of the Central Experimental Farm is interesting to fruit growers, being specially devoted to the treatment of apple scab, grape and gooseberry mildew. It has been carefully prepared by Mr. John Craig, the Horticulturist, and will be sent free to all on application.

BULLETIN No. 62 of the Ontario Agricultural College deals with the bark louse and the pear trees' slug, and has been prepared by Prof. J. Hoyes Panton, Professor of Natural History. Both these insects are so widespread and are doing so much mischief to our fruit orchards that this bulletin is quite opportune, and should be in the hands of every fruit grower.

The College bulletins are, of late, being printed in a larger sized pamphlet, and have a much more creditable appearance than formerly.

THE EXPERIMENTAL FARMS. Mr. William Saunders, Director of the Experimental Farms of the Dominion of Canada, has issued through the Department of Agriculture a very large and complete report for 1890, of over 300 pages, showing the great amount of really valuable work which is being accomplished by the Experimental Farms. While the departments which interest the general farmer are of a most practical and useful nature, we are pleased to notice the work that is being undertaken in the line of Horticulture, under the able direction of Mr. Craig, the Horticulturist. New fruits, both native and foreign, are being tested ; seedlings and small fruits are being produced on a large scale, many of which promise to be of great value. We hope that the Ontario Fruit Growers' Association may be made the means of testing some of the best of them, in order that we may know how they are suited to the various localities.

THE ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM, 1890. A valuable report of over 250 pages, by President Mills, showing that this College is thoroughly alive and wide awake in all departments of agriculture. Not only are the professors all men of great practical as well as theoretical knowledge, as is seen by their work among farmers at the numerous meetings of the Institutes, but the farm itself is being conducted in a most creditable manner. The great want here is a professor of Horticulture, who can devote himself entirely to the working out of this department, in its relation to commercial fruit culture. No doubt this want will be supplied in the near future.

BOOKS AND MAGAZINES.

MEEHAN'S MONTHLY is an octavo magazine of sixteen pages, with a colored plate of some wild flower in each number. Devoted to American wild flowers and general gardening. Edited by Thos. Meehan, Germantown, Phila. Price $2 per annum. The first volume commences with July 1st, 1891.

FUNGUS DISEASES OF THE GRAPE AND OTHER PLANTS.—By Prof. F. Lamson-Scribner. The name of Prof. Scribner, at the outset, gives authority to this work, and confidence in its teachings. Fungi have been subjects of special study with him, and he is consequently one of the foremost authorities in the country upon that subject. He treats the various fungus diseases presented in this book thoroughly, but briefly and practically. Their first appearance and subsequent development, down to the consummation of their evil work, are fully described in terse and comprehensive terms, and the nature of each disease and the means for its identification is given, with the remedies to be used and the mode of application. He treats most extensively of fungus diseases of the grape, but almost the most important of the fungus diseases of the apple, pear, peach, plum, quince, etc. The illustrations, of which there are over sixty, are excellent, and, we understand, are all original and drawn expressly for this book by Prof. Scribner himself. The book contains 134 pages and a conveniently arranged index. It is a timely and valuable work, and will be gladly welcomed by the large class of vineyardists and horticulturists who so much need its help. Price, cloth, 75 cents; paper, 50 cents. J. T. Lovett Company, Publishers, Little Silver, N. J.

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April 2t. **DAVID GREIG, Cainsville, Ont.**

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EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

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Canadian Horticulturist.

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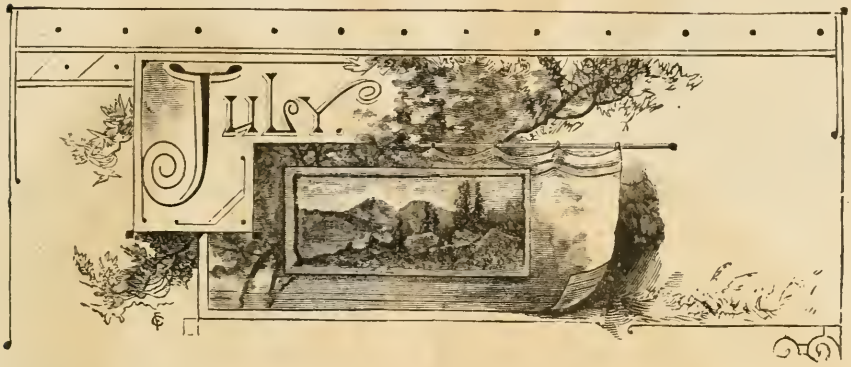

THE BRIGDEN PEACH.

OUR colored plate for this month introduces to our Canadian fruit growers a peach that was highly commended at the last meeting of the New York State Horticultural Society, but which, so far as we know, has not yet been grown by any one in Ontario.

This peach originated near Auburn, N.Y., with a Mr. Brigden, after whom it is named. An attempt has been made to name it the Garfield, after the late President, under the impression that a great name would give it greater acceptance, but such an attempt seem to us quite uncalled for. It would not only be an injustice to the originator, unless at his own request, but it is also unavailing to produce the desired results. Let a good fruit make its own name illustrious ; and, should the novelty prove valueless, its failure will be the less conspicuous. Hundreds of young Americans have been named George Washington by their fond and aspiring mothers, and not one of them has proved, on this account, any more worthy of comparison with his great original. And among the fruits, how many Presidents, Kings, Queens and Governors have utterly failed to command the slightest homage, while the very commonplace Baldwins, Wilsons, Concords and Crawfords have risen to the very highest places among the world's fruit aristocracy, and their names and praises are in everybody's mouth.

The Brigden peach is said to have some points of especial merit ; it resembles in appearance and in general characteristics that queen of peaches, the Early Crawford ; in some points it quite surpasses it, for it is earlier, more productive, more uniform in size, and superior in quality.

THE FRUIT SEASON.

ONCE more we are in the midst of our fruit harvest. The good results of the faithful application of fertilizers and of good cultivation will now be apparent, while it is too late to remedy, to any extent, the ill results of neglect. Hard work, persistent hard work, is the only road to success in our line, for it is the only way to produce fruit of a first-class character.

The great object now is to place the fruit we have upon the market in such a way as to bring the best possible returns. In our desire to make the most we can of our crop, there is great danger of pushing forward into the market much that would be better never shipped. There is no doubt that it would pay growers generally better to dump out on the manure heap all low grade stock, and expose for sale only the better class of fruit. All commission men agree that it is the inferior fruit which causes the gluts, and that first-class fruit will always bring good value, even in seasons of abundance.

The importance of a tidy package has often been emphasized by us, and little more need be said here on this point. We notice that the old fashioned 54-qt. berry crate is still in use in some sections, and some dealers, even in Toronto, go so far as to furnish their patrons with such crates, free of charge, in order to insure consignments; while at the same time these very dealers assure us that a 24-qt. gift crate is the most saleable. The reason is that it holds just about the quantity usually wanted in a family for preserving purposes; it is more easily handled, and so reaches the market with the fruit in better order; and, being a gift package, it is much more convenient to re-ship to outside country dealers. The accompanying Fig. 40, shows one of these crates; it is strong, convenient to handle, and withal quite economical, being supplied by almost any basket factory for about ten dollars a hundred. They are easily put together, so that, for those not near a factory, the best plan is to buy them in the flat, in which shape the freight is very little, and the first cost proportionally less; the nailing of them together will then be an easy job for rainy days. The same plan may be carried out with the berry baskets.

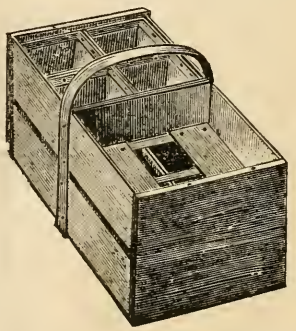

FIG. 40.—BERRY CRATE.

We notice in *Popular Gardening*, a basket nailing bench, illustrated as here given. It is thus described:

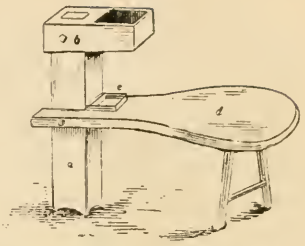

FIG. 41. BASKET NAILING BENCH.

Upon a standard (*a*), which is a piece of scantling two and one-half feet long, another piece nine inches long (*b*) is mortised and bolted. An iron plate (*c*), one-quarter inch thick. screwed upon (*b*), serves a good purpose in clinching nails. The seat (*d*) is two and three-quarter feet long, and made of two-inch plank, a foot wide. This is mortised and bolted to (*a*), and has two legs at the back end, which are 18½ inches long. The holes through which they are inserted into the plank seat from below, should be bored nearly but not quite through. Upon the plank seat, next to the standard, is a little tin box made of an old oyster can, for receiving nails.

In the same journal, we noticed some years ago a cut of a berry packing shed, slightly differing from the one given by us on page 150, volume XII. This one is rendered portable by two runners, so that it may be easily removed from one patch to another. It should be made of seven-eights inch planed lumber and painted externally. The engraving (Fig. 42) will sufficiently explain its construction.

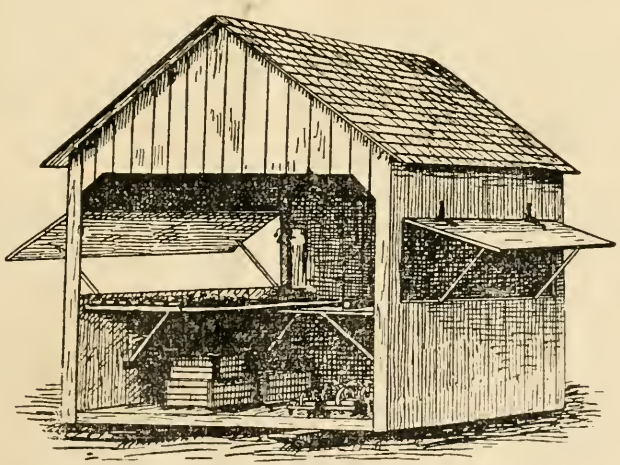

FIG. 42.—BERRY PACKING SHED.

For currants, cherries, early apples, early pears, peaches and plums, no package is so popular in Ontario as the 12 quart handle basket. It has been growing in favor for years, and has now wholly displaced the American round peck and half-bushel baskets, kinds which, it is true, had the advantage of easy nesting for return to the shipper, but since these can be purchased at three or four dollars a hundred, their safe return is not a matter of so very great importance.

The chief complaint with the twelve quart basket has been the jamming of the fruit, which results from the piling of the full baskets upon one another on board the trains; but this has been obviated by a new cover, shown in Fig. 44, which is quickly attached, costs little more than the simple leno, and is a perfect protection to the fruit within. We say this after having given it a season's trial. The same cover has also been provided for the various sized grape baskets, and it makes the neatest and tidiest package imaginable.

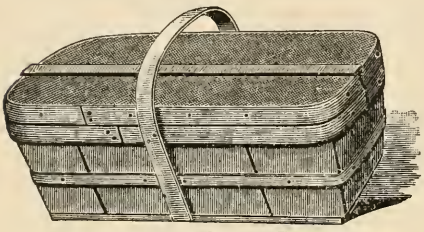

FIG. 43.—12 QUART BASKET.

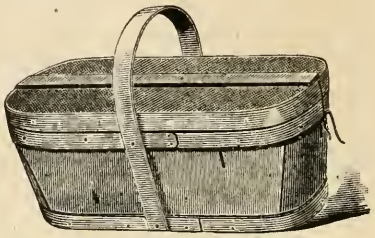

FIG. 44.—GRAPE BASKET.

A sensible warning to shippers is contained in a circular just to hand from a prominent commission house. It is "Avoid shipping on holidays." The reason is that they are poor market days, and, as a rule, arrivals on such days have to be cleared out to pedlars at ridiculously low prices. Many growers make a mistake in this very particular, thinking that holidays must be the best of all days for the sale of fruit; therefore this warning comes quite opportune.

CULTIVATE MORE DAHLIAS.—While reading recent articles on the dahlia, the thought occurred to me why do sensible people neglect this, one of the most popular flowers? There are very few people who do not cultivate more or less flowers; but the majority, if they grow any dahlias at all, have the common red and white ones, which the lover of this beautiful flower would not give garden space. The dahlia, like all other choice flowers, needs generous care and treatment, but even when neglected it often becomes the queen of the garden. It is no more trouble to raise choice flowers than common ones, and the same soil will answer for both. My dahlia collection now comprises 45 distinct varieties, and my garden room is very limited, but the space I devote to dahlias is the choicest in the garden. Among my choicest varieties are the following: Prof. Fawcett, Goldfinch, Mrs. Stancourt, Oriole, Jewel of Austerlitz, Floral Park, Jewel, Sapho, Startler, Magnet, Snowdrift, White Dove, Guiding Star, Leila, Lady Arlington, Lucy Fawcet, Electric, Margaret Bruant, Fanny Purchase, and others. Many hundred distinct varieties exist, and are catalogued every year, but those who are unacquainted with the different habits and colorings of this flower cannot fail to be more than pleased by planting the above-named varieties.—H. C. TOWNSEND *in Popular Gardening.*

SMALL FRUITS.

STRAWBERRIES.

BIG strawberry will always sell, however glutted the market may be; and at an advanced price. What you want above all things is a quick sale. Time is worth money, and in the picking season it is worth a great deal of money. Then for picking you see that you can get along with half the pickers if your berries average double size. I have picked a great many quarts that did not take over thirty berries; and I have seen quarts that held a great deal nearer one hundred, and perhaps more, fair berries.

There is always more risk of mashing or mussing when the berries are small. My large berries go as quick as I can furnish them; and ten times as many if I had them. "No," answered our merchant, "I dont want any more strawberries; but if you have any of those small pumpkins I want some; half a dozen crates if possible."

The Sharpless revolutionized our notions about a good-sized berry. It is one of the very best yet. Ontario I have tried to think is a different berry, but to all purposes it is the same. It may be a seedling closely resembling the parent. Haverland is another of the very large berries and a very great cropper, too. Bubach No. 5 is quite as good, and, in flavor, better. Crawford is another splendid berry, and Lida also, so far as I can judge from a poor test of it.

Of berries not quite as large, I select Cumberland, Manchester, Pearl, Eureka, as very fine. I believe one of the best of the new ones of very large size is Saunders, and I shall also give Tippecanoe, Parker Earle and Middlefield a full trial.

It does not pay us to try a very large number of berries unless we care more for experiment than for profit; as I confess I have always done. Even then the reports sent out by Crawford, Thompson, and some others, are so reliable that we can leave them to sift the list very greatly. There really is, however, so much good education from intelligent, careful tests, that I recommend every planter to have his trial plot or trial garden.

Here, besides strawberries should be a fair assortment of new raspberries, grapes, etc., before large fields are planted with them, only perhaps to prove a total loss. I have hastily planted such strawberries as Itaska, Bourbon, Vick, Belmont, May King, Ohio, etc., and had to lose the ground for two years and waste work on them.

I believe that if any one does not care to experiment, but wishes a field of superb reliable berries, and no mistake, that he cannot do better than plant Bubach No. 5 and Haverland with Sharpless and Saunders for bi-sexual sorts to

fertilize the field. Say one row of bi-sexual to one of pistillate. Lida might be added to the first list and Crawford to the second.

I do not know what simpleton it was who started the advice never to stir a strawberry bed until after the picking season, to let the weeds grow till then and after that hoe in. I followed the advice long enough to ruin my beds, wear out my comfort and spoil all the fun of growing berries. Now I keep the weeds out all the time.

A friend, in looking over my beds early in April, said, "But when will you take off the covering?" I answered him, "Never, that covering is all right in winter for protection, and in summer for mulching." I obtain horse manure from a neighboring stable and thinly cover the whole ground in November. If this is not procurable, I obtain sawdust and cover thinly as with manure. This is admirable protection, as strawberries do not need to be entirely covered.

In the spring the hens work this over, collecting all hiding worms and bugs. I do not disturb it further except in cultivating. The hens work in a part, the rest lies about loose and dry, and entirely innocuous of odor. It is, in fact, as clean as straw. It enriches the bed and saves a vast amount of work uncovering beds. Of course, if one cannot get manure free from seeds it will be better to use sawdust. That which I use is badly burned and the value much lessened for a fertilizer; but is all the better for cover and mulch.

I have never seen any market over-stocked with fine fruit, especially with berries. It frequently happens that inferior sorts are sold and customers made shy. In the grape season this is a serious injury to the market. No one should sell a Champion grape. I do not think much better of a Wilson strawberry. It will never teach people to crave more berries. It will not educate taste. People will buy it for a while and then get "tired of strawberries." But let them get hold of Bubach or Cumberland and see. It pays in the long run to grow the best and only the best.

BLACKBERRIES.

I have tried with some impatience a large number of blackberries. Wilson was tender, and Wilson, Jr. worse, so tender in fact that no fruit was sure after a good covering. Lawton is tender and sour. Kittatinny firm, but so tender that fruit could be counted only one year out of three. These I dug out with great labor, and what is the worst of such experiments you will see the last of a blackberry patch after ten years. Then I tried Wachusetts and Snyder. The first of them is all in all of no value. It is not thornless; it is small and so easily affected by dry weather as to be very small indeed.

The Snyder, if in rich low land, does nobly, but is really not a first-class fruit. It is hardy as an elm. I suppose, when I say low land, I must qualify by saying I live on a hill side. Blackberries are easily affected by drought, and so with me they are planted in my moist but not wet swale. I still hold on to Snyder.

The next to be tried were Taylor and Agawam. These two are everyway satisfactory. They are not very large berries but are fair-sized, and very prolific. They are also of delicious quality. I do not care to decide between them.

Erie has not given us fruit enough to pay. It is not entirely hardy; and yet is a very large and good berry, very round in form. Minnewaski comes out this spring badly killed back. I hoped it would be all right. Till further sorts are proven to be better, I shall plant Taylor and Agawam, and not give up Snyder.

Do not go very heavily into blackberries, as it is now quite a rage to plant them. The policy with small fruits is to divide your work between strawberries, raspberries, currants, blackberries and grapes. Then you can stand the loss of one or two sorts for a year or more. Something fails to be remunerative each year, but something always pays.

I find the blackberry a very popular home fruit. It is relished by the young in marmalade, jelly and canned, above almost all fruits. It is also very wholesome. After sour cherries and currants I prefer all the blackberries I can eat. If you do not choose to grow them for market, select a clean, cool corner for a row of Agawam and Taylor for home use.

The Lucretia Dewberry I like very much as a fruit. It is large, early, and delicious; but I am obliged at last to give it up, as being not worth the immense trouble it causes. It is not hardy and it is a sprawler of the worst kind. If quite hardy, however, we could afford to spend on it a good deal of time and care.—E. P. POWELL, in *Popular Gardening.*

PEGGING DOWN ROSES.—This is another way of making our gardens more interesting, and may well be done in the case of all vigorous growing roses. Beds, borders, or groups of roses so treated are among the most delightful things in a garden. If the long shoots of the last season's growth are pegged down to the ground they will flower their whole length; whereas, if left standing, only the upper buds will break, and if pruned hard back, beauty is literally and needlessly sacrificed. A strong shoot is usually thrown up from the base of the one pegged down, so that when pruning time comes, the operation here is simply to cut away the old shoot and peg down the new one, and so on year after year. One season of growth, another of flower, and then the shoot is cut away; thus the roses are ever being rejuvenated, and the youthful vigor brings abundance of bloom.

A bed of moss roses treated in this way has certainly been one of the prettiest things I have seen this summer. But all roses that make a vigorous annual shoot can be similarly treated. Gloire de Dijon, Boquet d' Or, Reeve d' Or, Madame Berard, and others of this class, often make shoots six or eight feet long in one year, and what could be more beautiful than to see them bearing flowers their whole length?—*Vick's Magazine.*

MISTAKES IN PACKING.

IT is not too much to say that perhaps not one-third of the farmers of this State who pack their own apples, use the legal (flour) size of barrel. Let us see how it pays. The apple crop of 1 889 was a large one, probably larger than in any other State, and proved to be the financial salvation of Michigan farmers. It was also one of the very best years to learn facts regarding the trade. During that summer and fall, I made it a point to learn, as nearly as possible, what the difference in price was between the full standard barrel and the "snide," in Chicago. I found the range of prices for the season to be $1.25 to $3.50 per barrel, and by inquiring at different times, and of a number of dealers, I found that the amount of difference in fruit amounted to a little less than one-half a bushel, and the difference in the selling price was from 50c. to 75c. per barrel, or an average of 60c. per barrel, after paying a slightly increased cost on the barrel. Or, in short, the Michigan grower received $1.20 per bushel for all the extra apples required to pack full standard barrels. And further, it is the large barrel that sells promptly, while the small barrel often suffers loss, in the case of a glut, by rotting down. This makes the difference still larger. The shippers in the city are the largest and best buyers, and they always want a large barrel with ten hoops, and are willing to pay for it.

The same rule applies to the whole line of small fruits, as the case in common use is supposed to hold 16 quarts, but in reality holds only 14 to 14½ quarts. We frequently hear men state that they do not represent them as quarts, but only as 16 boxes. Such statements are unworthy and suspicious, and we would expect the same man to ease his conscience from any little dishonorable act by the plea that he had not promised not to do it. Our package manufacturers come in for a share of the blame, as they have, to a certain extent, added in the deception by manufacturing the "snide" package. They will say that they can not control the people's wishes in the matter, and they are in the business to make anything the people want. This is, to a certain extent, true, but the best information we can get is to the effect that nearly every change in the size or style of package is first made by the manufacturer, and offered for our adoption, even without a demand, and we all know they are constantly making changes in the style and form of packages; and one idea seems to run through all the work, and that is to make them a little scant measure, and the majority of our farmers seem to think that a barrel is a barrel, even if it is not more than two-thirds grown, and the same with a quart box.

Appeals have been made time and again to the honesty and good sense of our growers to discontinue the use of such packages, and the practice of "stuffing," or dishonest packing, but so far it has accomplished but little. It pays to

be honest in fruit growing and packing, for the slightest trickery is detected instantly by the shrewd buyer, and he promptly knocks off enough from the price to protect himself, and the grower has to stand it.—R. Morrill, *before West Michigan Fruit Growers.*

CARE OF THE VINEYARD.

S the weather becomes warm, vines will grow very fast and should be tied up and pinched back promptly, or they will soon become a confused and unmanageable mass.

The most vigorous canes, those that start near the lower wire, should be selected for fruiting canes next season, and pinched off at about twenty inches in length. These canes will then throw out new shoots or laterals, which will be shorter-jointed and better than if not pinched at all. They should be tied up carefully to the upper part of the trellis and allowed to grow unchecked. All suckers and feeble fruiting shoots should be removed to give more vigor to those remaining, and so produce larger and better bunches. Strong, rampant shoots that are bearing should be pinched off beyond the last bunch of fruit. Very weak shoots do not require pinching back at any time. The remedy for such is short spring pruning.

If vines have been properly pruned and trained, more fruit will be set than should be permitted to mature, therefore all imperfect and small bunches should be removed and this will improve what is left and give finer fruit. Never allow vines to overbear, as this is the main cause of grape failure. Vines that once overbear, will not soon, if ever, recover. It is an old and true maxim that haste makes waste.

Cultivate and keep the vineyard clear from weeds by frequent plowing and hoeing. No fruit suffers so much from neglect as the grape, and none rewards so bountifully for extra care and cultivation. In fact fine grapes of high quality can only be raised on a suitable location with high cultivation. The difference in location on similar soil not two miles apart often amounts to 25 per cent. difference in the quantity of sugar the grape contains, which is the standard of excellency. No other fruit shows this great difference; and this is the reason so few succeed in growing fine grapes.—*Orchard and Garden.*

Value of Muck.—Every owner of a swamp should realize the fact that a ton of the air-dried muck may be worth from three to five dollars for its fertilizing value, as estimated for its nitrogen alone and as compared with the same element in artificial fertilizers. Those who have used it as a litter in stables have found each ton of it to double the value of the manure. Thus it becomes to the owner worth precisely as much as the manure.—*Southern Floral Magazine.*

MANAGEMENT OF HARDY GRAPE VINES.

THE summer management of hardy grape vines includes planting, pruning and trellising, cultivation, picking, packing and marketing, together with several items of occasional work, as fertilizing, destroying injurious insects, warding off fungus diseases, etc.

The introduction of the Concord grape, the invention of the Climax basket, the ability to ship to distant markets, in full car lots, at low rates and with quick time, have made grapes our leading, most reliable and by far the most remunerative farm crop.

QUALITY FIRST.—Will the business be overdone? is the universal question. We believe the answer to that question hinges on the one point of quality. We shall not fail for want of consumers. Sixty-five millions of people make a tolerably large market. The externals of good quality are easily named. When a 9-lb. basket of Chautauqua Concords reaches St. Louis, Minneapolis or Denver, it should be of full weight, of which 1¼ lbs. are the weight of the basket and 7¾ lbs. the fruit. The basket should be dry, clean and of neat appearance. The covers, preferably of white Basswood, should be of sound timber, free from holes, knots or decayed spots. The grapes neither too green, nor too ripe, should be free from crushed, mouldy or imperfect berries, and the clusters have just enough stems to handle with. Plainly stenciled on the cover should be the name of the grower, and the brand or trade mark of the Association. Accompanying each basket with these words: "These grapes are warranted of No. 1 quality. If not found as represented, will the consumer please report to the dealer from whom bought."

So much for the externals. The real quality, however, lies beneath the surface. The best grades have the clusters full, compact, handsome, highly colored, the berries large, plump and meaty to the taste, with a fresh, sprightly, vinous flavor. Soil, climate and cultivation unite to secure this perfect result. Fine quality is secured in the vineyard, or it is never secured. Failure there is failure all the way through.

The grape vine is the child of the sun. The wild vine climbs to the top of the tallest tree that it may bathe its foliage in the upper sunlight and air. Abundant light, air and cultivation. In that trio you have the secret of health and vigor for the vine and the highest quality for the fruit.

The baneful effect of weeds are two-fold, diminution of quantity and deterioration of quality. If you have the weeds and thistles up even with the top wire of the trellis, you will get none but second quality of fruit.

PLANTING AND PRUNING.—We use good, one-year-old number one vines, grown from heavy, well-ripened cuttings, in rich soil, in the open air. The rows are nine feet apart, and vines eight, nine and ten feet apart in the row.

Insufficient pruning means over production, and overproduction means poor quality. At the close of the season one acre of good Concord vineyard, in rough numbers, will have 150,000 buds on the new wood. The capacity of the soil will, we will say, mature five tons. This requires 25,000 buds, or one-sixth of the whole. So you see our vineyard is loaded up with buds enough for 30 tons. It will only carry five. Hence we must prune away five-sixths of the bearing wood. If we have too much, the soil is taxed beyond its capacity, and the result is a lot of second quality and refuse grapes. The amount of bearing wood left in pruning varies with different varieties. With Concord leave five canes of nine buds each, with Delaware, leave three, and Catawaba only two. Prune and train to secure the fullest and most even distribution of fruit. Because it more perfectly enables you to do this, a three-wire trellis is better than two, and four wire better than three.

CULTIVATION.—This extends from May 15 to August 15. In large vineyards the best tool is the two horse riding cultivator. Cultivate about twice in three weeks, or eight times during the season, each time of uniform depth, and don't be afraid to go down four or five inches. Vineyards thus cared for maintain throughout their dark, glossy green, and are as a rule absolutely drought proof.

HARVESTING.—Have all your baskets on hand and good help engaged before the first cluster ripens. Picking and packing grapes is the most healthful and delightful out-door and in-door work known to this latitude. Invalids forget their ailments, the weak become strong, the lean grow fat. Women are the best help. Their gentle touch just suits the need in handling a fruit exceedingly susceptible to injury.

REFUSE GRAPES.—What shall we do with them? Don't have any. It don't pay to raise grapes for vinegar. Refuse grapes comes from two sources, first from over-production, which calls for closer pruning; second, from bringing into the vineyard the manners and roughness of the coal yard, or from careless handling when first picked. Of course in the last half of the season there will daily accumulate some cracked berries, say about one pound in one-hundred. But if in 20 tons you have over 200 pounds of cracked or refuse grapes, or one-half of one per cent., you are not up with the practice of the best vineyardists.—S. S. GRISSEY, *before New York State Farmers' Institute.*

SALSIFY, or vegetable oyster, is a neglected vegetable; is as easily grown as parsnips and should be in every garden. There are many months in every year that have no "r" in them, and our Puritan or some other ancestors have long since prohibited the use of real oysters in those months. I have never known a family that some member did not wish oysters were good the year round, and salsify comes in to fill the place. It is easily prepared for the table and universally liked by the people.—*N. E. Farmer.*

GOOSEBERRY MILDEW—HOW PREVENTED.

THIS fungus has for the past three years been successfully combated. At the N. Y. Agricultural Experiment Station, Geneva, fine crops of this fruit have been grown entirely free from mildew. The success has been so marked as to attract the attention of a number of leading fruit growers, and this station is in frequent receipt of inquiries in regard to the application made.

The practice at this station is to begin spraying so soon as the young leaves unfold, and continue the sprayings at intervals of from eighteen to twenty days. In case of frequent, heavy rains, it will be necessary to spray more often. The fungicide used is potassium sulphide; liver of sulphur. Formula: one-half ounce dissolved in one gallon of water. If hot water is used the sulphide will dissolve more readily. As commercial liver of sulphur costs but little, from fifteen to twenty cents per pound, and one gallon will spray ten or twelve large bushes, if applied with a force pump and spraying nozzle, it will be seen that the largest cost will be that of labor. If spraying is done with a syringe on a small number of plants, the amount of liquid necessary will be increased, of course, but, however lavish one is with the solution, the beneficial results will more than compensate for the outlay. The few fruit growers who continue to grow gooseberries claim that they are one of their most remunerative crops, as the markets are almost always destitute of them, and buyers are willing to pay almost any price for bright, clean fruit. To test the matter of prices for superior fruit, a five pound basket of several varieties was picked at fruiting time last year and taken to a leading grocer of Geneva, who sold them as follows: the basket containing the large varieties bringing fifty cents, those containing the medium and small varieties bringing forty cents. The grocer stated that he could dispose of a large quantity at those prices. The average yield of three-year-old plants was over five pounds per plant, and as by setting plants four by four feet, two thousand seven hundred and twenty-two (2,722) can be grown on an acre, the results would have been a yield of thirteen thousand six hundred and ten (13,610) pounds; which, if sold at twenty-five cents a basket, would have brought the sum of six hundred and eighty-five dollars. Surely there is money in gooseberries when taken care of and kept free from mildew. In conclusion, it may be well to say that it is often claimed for certain new varieties, that they are mildew proof; but experience goes to show that, while some varieties are better able to resist the attacks of the mildew, sooner or later they will become afflicted as badly as older sorts.—*New York Agricultural Experiment Station, Geneva, N. Y., May 1, 1891.*

TO FREE STRAWBERRIES from sand, in a way less injurious to their fragrance and delicacy than washing, it is recommended to gently shake them in a piece of damp muslin. The sand will remain attached to the muslin.

THE ROBIN, THE ORIOLE AND THE CROW.

AT the meeting of the Massachusetts Horticultural Society, Mr. Thos. C. Marlow, of West Newbury, read an interesting paper on "The Protection of our Native Birds." Speaking of our familiar birds, he said :

The idea prevails widely, that our more familiar birds do more harm by eating small fruits, than they do good by destroying insects. The writer had met at a "Fruit Growers' Convention," men who were apparently intelligent and observing, who declared that the robin was "a thief and deserved extermination." It is true that a flock of birds will quickly despoil the crop of a single tree of a favorite fruit, but the large grower of small fruits who does it for profit, while offering a larger temptation, counts his loss in this way as trifling. Mr. Samuels, in his "Birds of New England," says, "the prejudice against the robin is unjust and unfounded." Professor Treadwell, of Cambridge, say, "The food of the robin while with us consists principally of worms, various insects, their larvæ and eggs, and a few cherries ; of worms and cherries they can procure but few, and during a short period. Therefore they are obliged to subsist principally on canker worms, some kinds of caterpillars and bugs." Wilson Flagg writes, "I am now fully persuaded that the robin is valuable beyond all other species of birds ; that his services are absolutely indispensable to the farmers of New England. The truth is, the robin is almost exclusively insectivorous, using fruit as we do, only as a dessert, and consumes probably a greater variety of species of insects than does any other bird."

This prejudice extends—although in less degree—to many other insect-eating birds, besides the robin. The oriole is accused of eating green peas ; the cat-bird and thrush are known to have eaten raspberries, and some farmers shoot the red-winged black-bird, and hire boys to break up their nests because, as they say, they have been caught in the act of pulling up corn. But alas for the poor bobolink ! It has been positively asserted that these birds would destroy the whole rice crop of the South, unless active measures were taken for their destruction. That large flocks of these birds hover over the rice fields and often light down upon them, is no doubt true, but the writer believed the amount of damage done by them was greatly exaggerated. He would kindly suggest to the rice growers that this matter be carefully examined, and furthermore, to find if the damage by the increasing host of insects was not far in excess of that done by the birds. He feared that if something is not speedily done to prevent the wholesale destruction of this and some other species of birds they will become extinct in a few years.

Among the enemies of our small, insect-eating birds, he thought the common crow did more damage by destroying the eggs and young of these useful species than he did by destroying the few insects he devours. This fellow had

been watched for years by the essayist, who had seen hundred of nests of robins and other small birds destroyed, the eggs eaten and the young carried away. Hence the robin seeks shelter by building its nest near to houses. He would recommend that all crows' nests near to farm houses be destroyed, and that this State offer a small bounty on his head. He was sorry to believe that the beautiful jay is often guilty of this mean business. Cats are useful animals if well treated and well trained, but a superfluity of uncared for, hungry cats, are a nuisance, and often destructive of small birds, hence they should be kept at a distance. The red squirrel is destructive of many species of young birds. The improvement in firearms and reduction in cost has proved a temptation to many a man and boy, who, for a few dollars, can buy an improved breech-loading gun. Unless educated to the contrary thousands of school-boys will thoughtlessly be led to destroy vast numbers of our most useful birds. But, saddest of all is that in this enlightened Christian age thousands of beautiful singing birds should be slaughtered to ornament ladies' hats and dresses! What a blot upon our times for the future historian to record! The essayist was glad to learn that the Princess of Wales had issued orders "that nothing need be submitted for her inspection or that of her daughters, in which birds are used as trimming," and hoped that her noble example might be followed everywhere, and especially in our own country.

SUPPORT FOR GARDEN PLANTS.—I am using this year 1,000 lineal feet of galvanized wire netting, four feet wide. This cost, delivered, a little more than one half cent per square foot, and will last indefinitely if cared for. It is the cheapest of all material for peas, beans and tomatoes. Last year I made a comparison between this and brush for peas. The only expense of the brush was the cutting, hauling and setting. Allowing for the time of two men and a pair of mules and wagon getting the brush, the cost of the brush, good only for one year, exceeded the first cost of the wire, good for ten. This wire throws no appreciable shade, and for training tomatoes is admirable, since there is always a place to tie to. In fact, but little tying is needed after the plants get well up, as a little attention to directing the shoots to and fro in the meshes supports them perfectly. Climbing beans fairly riot over it, and there will be no bother about Limas failing to catch to poles. Light stakes, well set, about ten or twelve feet apart, are all that is needed to support it, and short pieces of wire are better than the more permanent attachment of staples.—PROFESSOR MASSEY in *Orchard and Garden.*

THE apple buccalatrix is easily recognized by all fruit growers, from the small white cocoons thickly plastered over the branches. A heavy spraying of soap and kerosene emulsion will destroy many of them when done before the foliage starts; after they hatch and begin to eat the foliage in June, Paris green spray will check their work. A parasite often follows them.

HOME-MADE FRUIT EVAPORATOR.

CONSTRUCT a frame-work of scantlings, the edges of which should be dressed so that all the scantlings will be exactly the same width. Cut them four feet long and fasten together with strips of plank three inches wide and of sufficient length to place them exactly three feet and one-fourth of an inch apart.

These strips should be fastened to the side of the scantlings near their ends. Make seven of such frames and place them two feet apart, and fasten together by nailing on the ends of the scantlings strips of plank for plates and as wide as the scantling, and twelve feet two inches in length. Side up with weather-boarding, or what is much better, flooring, shiplap or boxing, which should be placed on perpendicularly. At each end there should be a door.

The roof should be made in the ordinary way, except a vent at the top two inches wide the entire length of the evaporator. A trough-like covering should be made for this opening and placed one inch above the roof. Strips of moulding to support the trays should be tacked to the inner edge of the studding. These strips should be at least one-half an inch thick and not more than one inch in width. Begin six inches above the lower end of the studding and tack these strips three inches apart.

The trays or frames upon which the fruit is to be placed should be just two by three feet and one inch in depth. The tray frames should be made of strips one inch square. The bottom of the trays should be made of plastering laths two feet in length. They should be placed about one-fourth of an inch apart, except in the centre of the trays, where there should be a vacancy of two inches to give proper ventilation.

The laths at each end of the tray should have their outer edge dressed, and they should be placed on in such a way as to to give the tray a play endwise in the evaporator of one-eighth of an inch. There should be seventy-two of these trays.

The evaporator, when completed, should be placed over a furnace of stone or brick, made similar to a Sorghum evaporator furnace.

Dig a trench ten feet long and as deep as desired for a fire-pit, and wide enough when lined with brick or stone to be fifteen inches from wall to wall. Cover the front end of the furnace with a wide flat stone, and the remainder of the furnace with of heavy sheet iron or pieces of old stoves.

Around this furnace build walls two feet high. The distance between the side wall should be three feet, and that of the end walls twelve feet. Upon these walls rests the evaporator.

There should be two or three openings the size of a brick left in the side walls near the ground for the entrance of cold air to drive the heat rapidly upward. Close these when necessary. Attach to the rear end of the furnace a stove pipe and let it pass thro igh one of the side walls and up on the outside of the evaporator to the height of eight feet. Beneath the trays and above the furnace suspend by wires a strip of sheet iron three feet wide and ten feet long. Bend this in a semi-circle so that the edges of the sides will be two feet apart. Place this sheet iron as near to the trays and as far as possible above the furnace, with its convex side downward. It will then direct the currents of hot air into the air chambers on either side of the evaporator. From thence the heated currents pass underneath and over the trays to the opening in the centre of the trays; from thence upward and out through the ventilator at the top of the evaporator.—S. A. LATIMER, *before Missouri Horticultural Society.*

MARKET GARDENING.

An excellent article, contributed by W. W. Rawson of Massachusetts, a well-known cultivator of successful experience, answers the question, how to learn the trade to the best advantage. He would advise young men who are thinking of taking up market gardening as a business, instead of rushing into it at once, without preparation and experience, first, to carefully study all the requirements, to complete the grammar school course, to spend one or two years at a commercial college, then go to the agricultural college, and after that course is completed spend one year at the Experiment Station. Then hire to the best market gardener for three or five years. "Then," says Mr. Rawson, "you will be fitted to take a position as foreman, or you may carry on the business yourself." He says he has pursued the business twenty-five years, has been unusually successful and yet he finds many things to learn, and that the business is yet in its infancy. Among other things, the main requirement depends more on the *man* than on anything else. He must understand the nature of growing plants; the different qualities of soil for each; the best time for planting; the mode of cultivation; the use of glass; he must be a practical engineer; understand something of chemistry and botany; be familiar with the laws of nature; and added to all these requirements, the more common sense he has the better. Many young men have come to Mr. Rawson and would like to work for him for one year that they might learn the trade. He has told them that five or six years would be short enough. For an advanced establishment a special superintendent must be employed, a salesman, a machinist to look after the machinery and tools, a night man to look after fires in winter, a painter to keep wood work in order, a harness maker, a man to take special care of horses and prevent sore shoulders, a vegetable packer to see that all are in a saleable condition, and a foreman for each department.—*Country Gentleman.*

FRUIT PROSPECTS IN ONTARIO.

JUDGING from the reports which have been sent from various quarters of the Province up to the present date, the fruit crop will, for the most part, be considerably under the average. Yet the prospects for growers seem to us to be unusually encouraging on account of the exceptionally good quality of the fruit itself.

Apples are very light, many varieties scarcely fruiting at all ; but not a sign of scab has appeared, an evil which, in previous years, has rendered so large a part of the crop unmarketable, while the codling moth has also been less active than usual.

About the same remarks may be made of the pear crop. The yield, generally, appears to be very light, but all the fruit that is set is beautifully clean and well shapen, the foliage looks healthy, the trees themselves are growing vigorously, and, therefore, all things considered, we may expect fruit of a large size and fine appearance.

We speak of this state of affairs as not a little encouraging, because fruit of a high grade will sell rapidly at top prices, and often brings the grower better returns than a full crop ; for this is sure to consist of a large amount of inferior fruit, which gluts the market and causes low prices, and which is also very expensive to handle.

In all peach sections there is a promise of a heavy crop of early peaches, especially upon young trees, but late varieties will be less than half a crop.

The drought during May and the early part of June has greatly damaged the strawberry crop, and even weakened the growth of the canes of the raspberry plantation, while the crop of grapes in some parts of the country has been almost entirely cut off by the late frosts.

Altogether we may expect that all fruits will bring high prices in the markets this season, for, owing to the failure of last year, the stock in the hands of the packers is low, and they will consequently need to draw largely for their supplies this season upon the growers. All the markets are very hungry for fruit, owing to the great scarcity of the apple crop of last year, and the high prices of apples which have prevailed during the whole winter.

In response to enquiries sent out to every county in Ontario concerning the crop, we have received a good many replies, from which we cull the following notes :—

SIMCOE COUNTY—*Sir*,—This has been a remarkable year so far, not only on account of the drought which continued from the beginning of April to the first week in June, but also on account of the cold backward winter and the severe frosts. Through the month of May we had frosts at least three or four nights every week, often forming ice from an eighth to a quarter of an inch in thickness. In fact, it is a wonder that all our fruit was not ruined. However, apples have set well and promise an abundant crop. Pears were badly damaged, mine were all frozen off. Plums have set well. Those top grafted on native stock have done better with me than those purchased from nurseries. Grapes are very backward, will probably be too late to ripen this year unless weather is very favorable in the fall. Raspberries look well.—G. C. CASTON, *Craighurst*.

PETERBORO' COUNTY—*Sir*,—Prospects of fruit crop very good, so far as the larger fruits are concerned, especially apples and plums.—E. B. EDWARDS, *Peterboro'*.

PRINCE EDWARD CO.—*Sir*—The prospects for a crop of fruit are somewhat gloomy here. Small fruits were injured by the frequent frosts. Raspberries suffering from drought, on light land they have almost completely failed. I think that small fruits will be less than one-half the average crop. Apples will be confined to sections where favorably situated. They have been later in blooming than I have ever known them to be before, by at least ten days Many varieties have set very thin, but so far there is not the slightest indication of spot. Pears bloomed very thin, and many varieties have not set one pear that I can see. Beurre Superfine, Urbaniste and Flemish Beauty had few blossoms, but have set well and are perfectly clean, so that the crop will be more profitable than in former years, on account of their excellent quality; but there will certainly not be one-third of an average crop. Plums and cherries light.—P. C. DEMPSEY, *Trenton*.

PERTH COUNTY.—*Sir*,—Strawberries scarcely half a crop. Raspberries, currants and gooseberries abundant. Plums throughout the county very heavy, but are beginning to drop from the ravages of the curculio. Cherries in the southern part of the county, heavy. Apples promise well. Though the bloom was not as abundant as usual, considerable fruit has formed and the crop promises to be an average one. Pears will be scarce.—T. H. RACE, *Mitchell*.

NORFOLK COUNTY.—*Sir*—Fruit trees vigorous and free from fungus, but large fruits are scarce. The severe drought nearly ruined the fruit crop. Taking 100 as a full crop, apples will yield 20 per cent., pears 15, plums 60, peaches 70, cherries 100, strawberries 10 and raspberries 60.—J. K. MCMICHAEL, *Waterford*.

ESSEX COUNTY.—*Sir*,—The prospects for fruit in this district are not promising. As there is more fruit set within the mile belt, adjoining the water, than in the interior, I would naturally expect that the percentage of fruit in Kent and Lambton to be below the average crops. Taking 100 as a full crop, apples will rate about 35 per cent., pears 40, peaches 50, plums 40 and grapes 30.—N. J. CLINTON, *Windsor*.

WELLAND COUNTY.—*Sir*,—The prospects in this county are about as follows: Strawberries, half a crop; raspberries, blackberries and grapes, full crop; apples, healthy but crop light; pears, crop fair; cherries and plums, good; peaches on high dry land, good, except Crawfords.—E. MORRIS, *Welland*.

OTTAWA VALLEY—*Sir*,—Apples. Fruit set fairly, but damaged by bud moth and leaf roller. Medium crop. Cherries light. Plums fair. Small fruits outside of strawberries promise well, the latter much injured by cold wind and drouth. (Eastern Townships—Apple crop promises well).—JOHN CRAIG, *Essex Farm, Ottawa*.

MIDDLESEX COUNTY—*Sir*,—Apples about half a crop; some orchards full crop; some very light. Pears a very light crop, killed by frost. Plums, very light crop, killed by frost. Cherries, a fair average crop. Peaches, a light crop; they are not a success here generally, except in a few very favored localities. Strawberries, a fair average crop, early blossoms were killed by the frost; other small fruits, fair prospect.—WM. DICKSON, *Park Hill*.

EAST ESSEX—*Sir*,—Apples are below an average crop Plums not grown extensively, but promise about an average crop. Cherries injured some by frost, nearly average crop. Peaches on the high land promise a very large crop, the best for years. Strawberries are not an average crop, owing to injury by frost. Raspberries, grapes, etc., promise a heavy yield. Currants are light.—W. W. HILLBORN, *Leamington*.

LAMBTON COUNTY—*Sir*,—The fruit of every kind in this county has been destroyed by the May frosts. Being more forward than usual, the heavy frosts in May caught the trees in bloom and destroyed nearly all. There will be some cherries in places, and some grapes, but no apples, pears or peaches.—J. A. MACKENZIE, *Sarnia*.

SIMCOE COUNTY—*Sir*,—Apples, plums and pears in north-west of Simcoe and north-east of Grey, good, but in south-west of Grey, very poor—L. BRILLINGER, *Collingwood*.

The Kitchen Garden.

ANOTHER NEW ONION CULTURE.

IT seems strange that so many people of different minds arrive at the same conclusions in so many different ways, and that, too, almost at the same time. Having been successful in my experiments, I tell of my excellent crops of the last five years.

I claim as fine crops of big onions as Mr. Greiner's, and two crops a year at that. My seedling plants are raised with far less trouble, are stronger and sturdier, and take all care of themselves until ready to be transplanted.

Five years ago I bought one pound of "Extra Early Pearl" onion seed. By the 15th of September the seed was sown pretty thick in rows nine inches apart The plants soon showed up, and the bright little green seedlings grew about three inches high, and so remained all winter in open ground without the least covering or protection of any kind. As soon as the weather permitted, in early spring, I began to transplant to a piece of ground prepared and manured the autumn before. I transplanted about four inches apart, the rows one foot apart, and the only manure used during the spring months was wood ashes sown broadcast over the rows. The onions ripened finely, and, when they were pulled, were a sight to behold. There were bushels of them—large, waxy, white onions, five and six inches across. But that was not all, for I had a second crop that year. That same spring, when I was through transplanting the seedling onions, I sent for another pound of Extra Early Pearl onion seed, and drilled in thick to raise sets. In due time they ripened and were harvested, and by the first of October were set out, three inches apart, in rows one foot apart, and March first I began to pull the crop for early market.

Two such wonderful crops, one in early spring, the other in autumn, have been unfailing with me each year during the last five years, this being the sixth. From where I sit as I write, this 10th day of February, I can see the rows of little seedling onions standing, thousands strong, like so many sentinels pointing the way to this, "another new onion culture"; for my experiments are experiments no longer.—JOHN C. HART, in *Popular Gardening*.

A fruit-grower reports that having an orchard of young trees badly infested with bark lice he made a solution of sal soda—half a pound to a gallon of water—and applied it with a white-wash brush. In a week's time they were all dead and washed off. The trees grew two feet a year afterward and remained very healthy.

PITT'S BASIN CELERY CRATE.

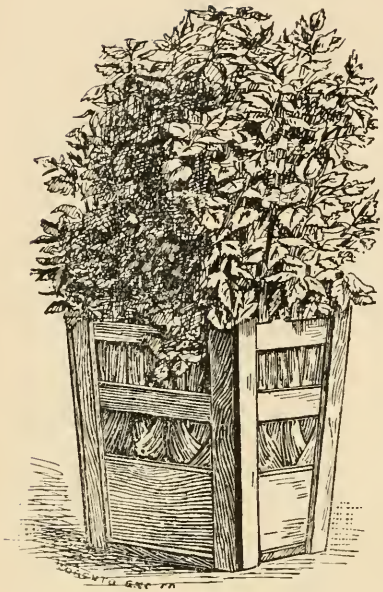

FIG. 45.—PITT'S CELERY CRATE.

SIR,—You will find enclosed a photo of one of my celery crates containing a half dozen stalks of the White Plume variety and a half dozen Boston Market, put up the first week in November last, and nearly as fresh and thrifty as when taken from the ground. I have found this method of keeping celery for family use superior to all other methods, and during winter weather, if not too cold, it is a good way to pack for shipment. By this method the freshness, sweetness, crispness and nutty flavor are fully preserved. I pack the roots of the celery in about four inches of soil in the bottom, or basin, of the crate. If it shows any inclination to wilt, a cup of warm water, with a little ammonia, will freshen it up again. I prefer to let it wilt a little, especially if it is designed to keep it till late in February or into March, at which time celery always brings a much better price. This is my third year of using the crate. I can bring references, from all the hotel keepers of Welland, as to its superiority, also from leading citizens and professional men in regard to the superiority of this system of handling and storing celery. I find also that I can secure the patronage of those who use celery, over all competitors, and, besides, I can sell from one to three dozen in a crate, where, by the old system, parties refuse to buy more than a half dozen, on account of its *wilting* and spoiling. This you see is also an important point to all gardeners, as well as customers. I intend having the crate patented.

St. Johns West, Ont. J. N. PITTS.

CATCH 'EM AND KILL 'EM is the plan proposed by Mr. B. Gott, of Arkona, as the best mode of ridding our orchards of codling moth, plum curculio, canker worm, etc., etc. He would bind haybands about the trunks, or other appliances to trap the larva of the codling moth; and he would build fires to attract the mother moth. Such plans were all very well before we had found by actual experience how safely and effectively arsenites can be employed; but, in these days, such a scheme sounds very like the boy's plan of catching birds by putting salt on their tails! It is a very slow way of accomplishing the purpose.

MANURING CABBAGE IN THE HILL.

TO grow a good crop of cabbages, the soil must be well provided with plant food. Not only the minerals, but nitrogen also must be in full supply. Plowing in clover stubble, and still better a good stand of clover, makes a most excellent preparation for cabbages, but if they are to be set very early, the green manure should be plowed under early enough the preceding season to give a chance for the decay of the material plowed in. For late cabbages, the plowing can be done in spring. In either use, however, some additions to the soil fertility must be made.

If the clover plants furnish the nitrogen and carbon that may be needed for the thrifty growth and full development of the cabbages, we will make sure that the potash and phosphoric acid is not wanting by applications of wood ashes and bone flour. Such applications may also assist in the change whereby the unavailable nitrogen is changed into the available nitrate form.

A good way of applying these materials is suggested by James J. H. Gregory in *American Cultivator*. It has given him great satisfaction. "I first spread a two-inch layer of fine soil," he says, "on the shed floor, which I moistened well with the sprinkler, and then had two inches of flour of bone, also well sprinkled, and then finally from one to two inches of unleached wood ashes, which were also well moistened. In this order I formed a heap about three feet high. In about a fortnight this heap had heated sufficiently to dry the moisture, when it was cut down with a hoe, and all the dry lumps knocked up fine. I used a closed handful of the mixture in each cabbage hill before planting.

In all my experience in growing cabbage, for upwards of thirty years, I never saw more thrifty plants than grew over that manure. The leaves were broad and open, with that healthy green color which delights the farmer's eye, and without that naked stem connection of the leaves with the stem which characterizes feeble plants. The caustic potash of the ashes had so acted on the fine bone as to make it very more valuable as a fertilizer. Though it was not made soluble, yet it readily became so when in contact with the soil."—*Pop. Gar.*

JOSEPH HARRIS says there is nothing equal to nitrate of soda for producing a large crop of onions. He advises 250 pounds per acre two or three weeks apart, pulverizing the surface soil continuously, which is about as important as the fertilizer. Experiments at some of the agricultural stations indicate that it is best to sow all the nitrate of soda early, at once, broadcast. One great advantage, which it possesses, is in its early and prompt action.

RIPENING TOMATOES.

IN the opinion of Mr. Eli Minch, tomatoes ripen earlier and are better in quality when kept from the ground. He trains to good stout brush, sharpened at one end, and cut off square foot or two long. These stuck around the plant make a level, even-topped support for the vines. He also advises twisting or splitting the vines between the fruit and the root, thus forcing the fruit to early ripening.

A few years ago Prof. Bailey, then in Michigan, recommended a rack for the market plantation which he described as follows: About every six or eight feet a stout stake was driven on either side of the row and 15 inches from the plant, the stakes when firmly driven standing over a foot high. A strip of old boards was nailed near the tops of the posts along on either side of the row. Then edgings were tacked across from one side to the other, four about each plant and a foot apart. Upon this rack the tomatoes needed no tying or training, and they spread themselves freely to the sunlight. The circulation of air under the racks was so free that there was no unusual danger of rot. This is decidedly the best rack which we have tried. We noticed, also, that the fruit ripened more uniformly here than on the plants which were tied to stakes. We shall try other methods of training next year. It appears advisable to try but a very few sorts each year in order that they can be tested upon a larger scale,

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THE EMERALD GEM MUSK MELON.—We like melons, especially good and spicy ones, such as for instance the emerald Gem, the superior of which in flavor we have never met. Some of our neighbors grow Hackensack, and similar sorts for market. We find most of these ordinary sorts too late for our climate and grounds, unless started early under glass and transplanted. But we do not see what we could gain by growing these later sorts merely to get size and insipidity when we can plant the Emerald Gem in open ground in its proper season, and get quality, sweetness and spiciness.

The Emerald Gem is early, consequently we can plant it confidently expecting a long season of the most luscious melons imaginable. And this variety well deserves even a little extra painstaking to make it earlier. Our way is to dig a hole for each hill and fill it with a mixture of sand, rotted manure and loam, and plant the seed in this. Some of the hills are started even before the time for general planting, and covered with a little frame with a pane or two of glass on top.

If you have never tried the Emerald Gem, it is time you should. If planted in June they will still give you ripe melons before frost, even in a locality with as short seasons as ours.—*Exchange.*

RUBBER BANDS FOR BUNCHES OF ASPARAGUS.

Prof. Green, of Ohio, recommends the use of rubber bands as much better than string in the fastening of asparagus bunches. He says the work can be done more rapidly and better, and that they afford a saving of time sufficient to pay for the increased cost over string. Rubber bands, he states, may be purchased for about $2.00 per pound, and the size best adapted for the purpose runs about 2000 to a pound, which is sufficient for 1000 bunches. The method of bunching with rubber bands is to slip one over an ordinary teacup (one with straight sides and without a handle) fill the cup with asparagus shoots, heads downwards, and then slip the band from the cup to the bunch ; another band is then slipped on and the butts cut off squarely with a sharp knife.

He further states that male asparagus plants are 50 per cent. more productive than the female plants, and that the shoots come up a great deal larger.

ONION EXPERIMENTS.—The journal of the Columbus Horticultural Society gives an account of the experiments performed under the superintendence of W. J. Green, in connection with transplanting young onions. In one of two beds, side by side, and similar in character, young plants from the greenhouse were set, and in the other seed were planted in the usual way. The young plants from the greenhouse were six inches high by the middle of April. In all other respects, except in transplanting, the two beds were treated alike. Twice during the season, when the weather was dry, both were irrigated. The sown plants were thinned, so that both stood three inches apart, in rows a foot apart. The difference in the two rows was marked from the start. None of the transplanted ones died in the operation; and they were much larger at all times, and appeared healthier. They appeared to the eye as twice as heavy a crop as the sown plants. Both beds required weeding during growth, but, besides the labor required for thinning, the work in the sown bed was difficult and slow, while in the transplanted bed it was comparatively easy, and not more than one-half the amount required for the other bed. But the additional labor of growing in the greenhouse and transplanting made the work for the two beds about the same through the season.

The difference in the time of maturing was about a month in favor of the transplanting, and they could be prepared for market at an earlier date. Thirty varieties were tested in these experiments, most of which yielded nearly twice as much in the transplanted bed. Taking the actual product, and calculating at the same rate by the acre, the variety known as Spanish King yielded at the rate of 750 bushels per acre from the sown bed, and 1,319 bushels from the transplanted bed, and there was about the same difference with the other varieties. There was less difference with Yellow Danvers and Red Wethersfield, and there was more difference generally with the foreign sorts. The young plants may be raised in a hot-bed instead of a greenhouse.—*Country Gentleman.*

The Canadian Horticulturist

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NOTES AND COMMENTS.

ERRATA.—On page 192, for *one pound* of hellebore, read *one ounce*.

THE TRIOMPHE DE VIENNE PEARS sent out to members of the Ontario Fruit Growers Association this spring, were too large to go by mail, and to conform to postal regulations had to be cut down to two feet in length. The loss of top will, however, prove only temporary, as the roots were sent entire.

LAWN GRASS.—Experiments at LaSalle seem to indicate, that for ordinary lawns, mixed Kentucky Blue Grass and Red Top, in equal quantities, is best and cheapest. This can be purchased at $1.67, or thereabouts, per bushel, while the so-called "best lawn mixtures" are sold at about $4 per bushel.

THE CRESCENT STRAWBERRY.—Mr. B. F. Smith, Secretary Kansas Horticultural Society, says that berry growers should discourage the growing of this variety, because all markets are glutted with them, and they are too soft for reshipment. This is especially true when picking season is about half over. Some firmer berry would enlarge the demand and improve the market.

THE MISSOURI HORTICULTURISTS held a summer session in St. Joseph, on the second of June last, and had an attendance of about one hundred delegates. Secretary Goodman read a very interesting report, in which he showed the great possibilities of that State for fruit growing, and emphasized the importance of making a creditable display of the fruits and flowers of the State at the coming World's Fair. According to a paper read by a Mr. Murray, of Ogden, Mo., the average yield of apples in the State, is about 5,000,000 barrels, the most of which are consumed in the cities of that or adjoining States.

WE shall be much obliged to apple shippers, who are readers of this journal, if they will make public, through these columns, any unfairness or trickery which chances to be practised upon them by commission merchants anywhere, either in England or in Canada, and we shall be glad to make it public. We want to know who the reliable men are, and who the rogues, and to allow none except the former to have place in our columns.

SUN SCALD.—Mr. Hatch, of Wisconsin Experiment Station, attributes this to severe cold, followed by rapid thawing out under a hot sun. He would wrap the trees, in sections where this prevails, with medicated straw. By this he means straw dipped in whitewash containing some carbolic acid and Paris green, so as to keep away injurious insects and vermin. Prof. Budd thinks the evil is usually started during the first stages of growth after transplanting.

A KILLING frost occurred in England on the 16th and 17th of May last, doing immense damage to fruit crops. The thermometer fell to 21°, 11° below freezing, accompanied by snow and hail. As a result, half the gooseberry crop was destroyed, plums, cherries, pears and apples suffered very badly, a portion, perhaps, being saved because not being quite far enough advanced, but many even unopened blossoms were blackened at the heart. This is a most unusual disappointment for our English fruit-growing friends to endure.

THE INDUSTRIAL.—We are pleased to learn that, through the instrumentality of our representatives on the Industrial Fair Board, an entirely new fruit building is to be erected. It is to afford four times the former accommodation, and to be entirely devoted to fruit exhibits. It is to be built in front of the floral hall, facing east. This is an improvement much needed in order to give that prominence to Canadian fruits which so important an industry deserves.

CELERY GROWING about Kalamazoo, Mich., must be a very important industry. According to the *Michigan Farmer*, there are fully one thousand persons about that town who make their living out of that industry. The early celery begins to go to market about the 20th of June, and continues to come in, in succession throughout the season. The yield for this season is estimated at about 4,500,000 dozen, for which growers will realize a net return of from ten to fifteen cents a dozen, and this will mean an income of nearly $1,000,000.

THE AMERICAN POMOLOGICAL SOCIETY will hold its twenty-third session at Washington, D.C., on the 22nd, 23rd, 24th and 25th of September, 1891. An official programme will be issued at an early date. This is an old and respectable Society, for a long time fostered by the venerable M. P. Wilder, to whom it owes much of its high reputation and usefulness. A worthy successor has been found in Mr. P. J. Berckmans, of Augusta, Georgia, and with so efficient a sec-

retary as Prof. A. A. Crozier, of Amos, Iowa, surely we may expect great public benefits will accrue from its meetings and labors.

"THE FERTILIZATION OF OUR FRUITS," is the subject of a paper by Mr. J. P. Ray, Wisconsin, in the *Scientific American*, and in speaking of the strawberry he says that, in selecting varieties, the question of affinity ought to be considered, some plants having stronger affinity for each other than others. For instance, Jessie he considers to be the best fertilizer for the Bubach, and Burt's Seedling or Governor Hoard for Warfield's No. 2. To get earliness and firmness he recommends Michel's Early. The principle on which he makes the selections is simply this: where any variety is wanting in any point, as productiveness of fruit, of firmness of texture, or quality, the fertilizer should be chosen which excels in the point lacking.

KEROSENE EMULSION.—There are two methods given of preparing this; (1) Dissolve in two quarts of water one quart of soft soap, or one quarter pound of hard soap. Heat to boiling point and then add one pint of kerosene oil, stirring violently for three or four minutes. Add water to make the kerosene equal one-fifteenth of the whole compound. (2) Dissolve half a pound of soap in a gallon of boiling water, and then add two gallons of kerosene. When wanted for use, dilute with nine parts of water. Either will be found quite effective in ridding the cherry, and other trees of those ugly black aphids which have increased upon them so rapidly during this dry, hot season, and also in clearing the rose bushes of the green lice which often appear along their stems in such vast numbers.

THE ARSENITES AND LIME.—The following statement appears in a recent bulletin of the Ohio Experimental Station: In 1888 we sprayed a number of pear trees with London purple in the proportion of eight ounces to fifty gallons of water. At the same time other trees were sprayed with the same mixture, except that a half peck of fresh slaked lime was added. It was then found that while the trees sprayed with London purple alone had their foliage decidedly injured by the application, those sprayed with the lime and London purple were not affected. In 1890 these experiments were repeated in such manner as not only to show the effect of adding lime, but also to determine whether Paris green or London purple is the more liable to cause injury to the foliage. The results of these experiments fully confirm those of 1888 and 1889 in showing the advantage of adding lime, and they further show that Paris green is much less liable to injure foliage than London purple.

FRAUDS ON APPLE SHIPPERS.—It has always been our aim to aid our brother fruit growers, by every possible means in our power, both in the growing and in the disposal of their products; and we have tried to be particularly care-

ful not to admit to our advertising columns, the name of any commission merchant who is not of first class reputation. We are therefore exceedingly grieved o find that F. Corby & Co., who advertised with us last year, have turned out to be fraudulent, and that several Ontario shippers, who consigned their apples to them, have been badly victimized. Their plan of operation was to report the fruit arriving rotten or slack, and so not bringing enough to pay bills of lading; they then proceeded to collect from the shipper the amount of expenses of carriage even, thus pocketing the whole proceeds of the cargo. A swindle like this deserves the exposure which it gets in the *Trade Bulletin*, and will we hope put us all more than ever on our guard. This Corby & Company is but a new name for the firm of Pitt Bros., of Covent Garden, London, Eng., whose advertisement we refused insertion in our journal two years ago, because we had some doubts regarding their reliability.

THE Bubach strawberry should, according to the best authority, be pronounced *Bubaw*, and not *Bubak;* and, since it is better to be right than wrong, we ought to govern ourselves accordingly. Mr. VanDeman, United States Pomologist, speaks highly of this berry in his last report. He says that it has more good words said about it than any other variety now before the public. The originator is Mr. J. G. Bubach, of Princeton, Illinois, and is called number 5, to distinguish it from others which he has originated. The plant has a robust and hardy constitution; the flowers are pistillate, but this defect is easily remedied by planting every fifth row with some perfect flowered variety. The color is crimson, and very attractive; the flesh is dark to the centre, and, in large specimens, a cavity is often found at the centre, but the fruit is sufficiently firm to ship well. The flavor is good, but not of the highest quality. The berries are large, and inclined to be coxcombed in shape, and they ripen about midseason. The yield of fruit, under good cultivation, is heavy, so that altogether it is a very profitable variety to grow for market.

MORE ABOUT FUNGICIDES.—Mr. B. T. Galloway, Pomological Chief at Washington, gives some further points in his last report upon spraying trees. After considerable experiments in the use of the various copper mixtures, he finds that there is more profit in the use of the ammoniacal solution than in the Bordeaux mixture, and that nothing whatever is gained by treating with the carbonate of copper in suspension when the ammoniacal solution is at hand. In experimenting with pear leaf blight and scab in the pear orchard, he finds the ammoniacal solution also to be preferable, and in his experience three early treatments are just as effective as a larger number made at intervals throughout the season. Indeed spraying after the fruit is half grown is liable to injure it. Some experiments were also made in treating raspberry leaf blight, but he finds

the foliage of the raspberry to be too tender to endure such applications. Of the new fungicides the most promising is the one called mixture No. 5, containing equal parts of ammoniated sulphate of copper and carbonate of ammonia, thoroughly mixed and put in air tight tin cans. The sooner some such article is placed in the market for use of fruit growers the better, for many are deterred from undertaking the use of fungicides by the apparent difficulties of their preparation.

Question Drawer.

DRIVING AWAY ANTS.

SIR,—I am troubled with ants swarming at the roots of my young fruit trees. Kindly inform me what will destroy them.

W. DEMPSEY, *Vernon, B. C.*

Specifics for the destruction of ants are very numerous and some of them too troublesome to be employed in an outdoor garden; such as, a saucer of sweet oil, in which they are drowned, or half picked bones, upon which they congregate, and which are then thrown into hot water. Our correspondent might experiment with any of the following, and let us know the result: Air slacked lime, plentifully dusted in warm, dry weather over the hills and other places infested. Carbolic acid, diluted in ten or twelve times its quantity of water, and well sprinkled over paths or other places where there is no vegetation. Four ounces of quassia chips, boiled in a gallon of water for about ten minutes, and four ounces of soap added to the liquid as it cools, the mixture to be well sprinkled around the nests and runs. Fresh guano sprinkled on and around their quarters.

BUD-MOTH AND ROOT BORER.

SIR,—My apple trees are infested with a small worm closely folded in the leaf; the worm is about half an inch in length. Do you know anything about them, and what remedy would you advise? We are also troubled with worms or grubs in the raspberry canes, and would like to know what to do for them.

JACOB BAINARD, *St. Thomas, Ont.*

The first insect you mention is the Bud-moth referred to above. It is very troublesome at Maplehurst this season, and in all orchards around us.

The raspberry is subject to two different borers, the Root Borer and the Cane Borer. The latter girdles the cane near the tips in the month of June, in two places, and thrusts an egg into its substance, near the middle. The tip of the cane soon dies, and thus betrays its destroyer's presence. The perfect insect is a Longicorn beetle. The Root Borer is quite a distinct insect, and belongs to

the same family of moths as the peach root borer, which indeed its larvæ resembles so closely that any one, not an entomologist, would pronounce them one and the same. The eggs are deposited on the leaves during the hot summer, from whence the young larvæ finds its way into the cane and thence to the root, where it spends the winter. The cane borer may be destroyed by cutting and burning the affected branches, but the root borer is not easily dislodged, except by digging up all affected canes, root and all, and burning.

PRUNING TOMATO VINES.

SIR,—It would be a great favor if you would inform me in your journal what is the best method to hasten on the ripening of tomatoes. Will they ripen faster when the vines are well pruned than if neglected, and will rich soil and rank growth tend to ripen them sooner than an average soil and an average growth ?

ROBERT STEED, *Sarnia.*

Reply by J. J. H. Gregory, Marblehead, Mass.

I think that pruning tomato vines will hasten the ripening, but it should be by cutting off the small branches rather than individual leaves. For a good crop I would much prefer an average soil well manured to a rich one. With tomatoes, the first blossoms as a rule ripen the first fruit.

FIVE BEST APPLES IN ESSEX.

SIR,—Would you consider the Yellow Transparent, Duchess, Mann, Wealthy and Grimes' Golden the five best apples for Essex county ?

W. C. WILSON.

Orchardists living in the county of Essex will be best qualified to answer this question, for apples that are best in one part of the county are not always best in another. The writer does not esteem the Mann apple very highly ; it has a poor color, less attractive than the Greening, and it is inclined to drop its fruit rather early for a long keeping apple. Grimes' Golden is a very good apple, especially handsome about Christmas time, but scarcely showy enough to suit our notions in autumn, at which time most of us prefer to sell our apples. Would some orchardist in Essex give his views in reply to this question ?

THE BUD MOTH.

SIR,—I send you an insect which is infesting my orchard in great numbers. The foliage seems to be full of them. I wish to know, through your valuable paper, what they are, and how to get rid of them ?

A. J. KELLY, *Talbotville, Ont.*

The insect sent by our correspondent is the bud moth, referred to on page 168 of this volume. The best remedy is to apply Paris green in early spring, spraying the trees just as the buds are unfolding.

THE YELLOW HELMET BEETLE.

SIR,—I send you a tin box of beetles which I have found for the first time on my sweet potato plants. They eat numerous holes in the leaves. Are they new to this country, and what can I use to destroy them ?

THOS. BOON, *Bothwell, Ont.*

Since your specimens came to hand we have found the same beetle riddling with holes the leaves of our Morning Glorys. It is not a new enemy. Mr. Fletcher, Dominion Entomologist, says it is the Yellow Helmet Beetle, *coptocycla aurichalcea*, a common pest of the sweet potato, and other members of the Convolvulus family; and that a weak solution of Paris green is the best remedy.

⁂ Open Letters. ⁂

THE ZINC TRAYS.

In reading the paper on this evaporating of fruit, in the last report, I observed what difficulty the zinc from the use of galvanized wire was causing in Hamburg and other foreign parts, prejudicing the trade in evaporated fruits. I have thought over the matter since and have concluded that if the wire netting for use in evaporators were treated to a glazing process, instead of being galvanized it would overcome the difficulty completely. I fancy it could be managed. I mean to make it like the iron utensils (pots, saucepans, etc.,) called "granite ware," which you no doubt have seen.

W. H. WYLIE, *Carleton Place, Ont.*

PRICKLY COMFREY.

SIR,—With reference to Mr. N. J. Clinton's letter in this month's issue, I regret that his horses and cows were so obdurate in their refusal to eat his prickly comfrey after the trouble and expense he had incurred in growing it. Here we have now nearly got to the end of our second cutting of it for this season. All our milch cows and young stock (20 head in all, and 7 of our 9 horses ate it readily, and the pigs avail themselves of any opportunity to get at it. The two horses which do not care for it are old animals and probably too fixed in their habits to take to such a change from their accustomed diet. The more I see of it the more I am convinced that it is one of the most useful and best paying of forage crops ; and my sole object in advocating its cultivation is to induce others to avail themselves of the benefit open to them. I have had the pleasure of distributing a good many root cuttings during the past spring, to enable applicants, unable to procure them elsewhere, to make a start in its cultivation, but in all cases I declined to accept any money payment.

I state this simply for the purpose of showing that I am not seeking any gain to myself in recommending others to try it, and I feel the more urged to take upon myself its advocacy as it is not a crop the professional seedsmen are likely to push into prominence, and as, being permanent when once planted, it supersedes to some extent other crops, to grow which would require an annual application to the seedsmen for seed, with the consequent payments of the bill for the same. Perhaps Mr. Clinton put his horses and cows in pasture before feeding the comfrey to them, which is a course, he will see on referring to my former letter, I advise should not be adopted.

ARTHUR GEO. HEAVEN, *Boyne, Ont.,*

June 13th, 1891.

MOORE'S RUBY AND FAY'S PROLIFIC CURRANT COMPARED.

SIR,—In reply to an enquiry in the May number of the HORTICULTURIST, regarding Moore's Ruby and Fay's Prolific Currants, I may say that I have fruited the former seven and the latter five years. The Ruby is not as large nor as heavy a bearer as the Fay's, and on that account not as profitable a market currant. But for eating out of the hand, or on the table with sugar and cream, the Ruby on account of its sweetness, has no equal. The Ruby requires a soil well enriched to keep up its size, and with that provision its quality as a family currant is unsurpassed.

T. H. RACE, *Mitchell, Ont.*

MARKET PROSPECTS IN GREAT BRITAIN.

SIR,—We thank you for yours of the 13th ult. Before the season commences we will let you have a code, so that you will be able to publish the information that we place at your disposal. For your guidance, we may mention that the lookout for apples here look well, but as yet it is too early to determine positively, as the cold winds have affected the early fruit, such as cherries, strawberries, currants and gooseberries, and it is not yet certain as to the others. At all events you may safely rely upon this, that if Canadians are plentiful and can be sold at moderate prices, they will oust the English apples. There is no quantity grown of the early summer fruit, and the growers here have recognized the fact for some years past, that with the inferior quality of our own apples, they cannot compete with the Canadians, and, as a natural consequence, as soon as their crop is ready, they turn it into money, without risking keeping the fruit during the winter. As the season advances we shall keep you thoroughly advised, and any information that you may give us we shall be pleased to receive. The last shipment of Tasmanian apples is due next week, two steamers bringing 37,000 cases, each case containing from 36 to 40 pounds of fruit. They are being sold at what is considered moderate prices, from 9/- to 12/- per case. The quality is extraordinary, and they arrive here as fresh as if they had only been gathered from the trees two days before.

Yours faithfully,

GARCIA, JACOBS & CO.

Covent Garden, London, England, June 4th.

THE SAUNDERS PLUM.

SIR,—I see in the HORTICULTUREST for May, page 156; W. C. Wilson asks about the Saunders plum. It does not resist curculous. I have not seen blacknot upon it, but will not say it is proof against it in this part. I believe it one of the most profitable varieties we have, being very broductive and the earliest large plum we have. Mr. Aris, the originator, told me he always has orders for his whole crop, before it is ripe, at $4.00 and upwards per bushel.

P. C. DEMSEY, *Trenton, Ont.*

THE PRINCESS LOUISE.

SIR,—The Princess Louise apple I got from the Association, two years ago, has came through its second winter in Manitoba, looking I think, more healthy and vigorous than ever. It is now a fine stocky tree of over three feet, and it came out the bud next to the terminal. It is one of the finest looking and healthy apple trees I have. Wealthy's, growing along side, showed no superior hardness over the Louise. What I have seen of it so far shows it to be equally as hardy.

A. P. STEVENSON, *Nelson, Man.*

LONGED FOR SUMMER.

SUMMER days have come at last—
I've wearied for their coming;
The swallow bands are sweeping past,
And wandering bees are humming.

The robins carol on the boughs
Of my stately pussy willow;
The very lowing of the cows
Makes the air feel mellow.

The school boy's shout at bat and ball
Shows dreary winter's over,
That would-be mother with her doll,
And happy, scampering Rover.

Oh! could I but walk again
Throughout that clover field,
Along the road and down the lane,
What pleasure it would yield!

But here I lie, a stricken soldier,
Who in life's battle struggled long;
Salvation's armor on my shoulder,
Until my Captain calls me home.

Gladly shall I leave the field,
For my Great Physician's sleeping balm
For by His stripes I shall be healed,
Then, oh, the crown! the robe! the palm!

GRANDMA GOWAN.

NOTE.—Our readers will join us in sympathy for our Canadian poet of horticulture, MRS. GOWAN, who has for some time lain quite ill at her home in Mount Royal Vale. This poem was written on her slate for us during her illness, and copied by her grand-daughter, Clara, for THE CANADIAN HORTICULTURIST.

WENTWORTH—*Sir*,—For the vicinity of Burlington our local society authorize me to report as follows: Apples, light; pears, very light; plums, peaches and cherries, good; raspberries, gooseberries, and black berries, good; red and black currants and grapes, fair. —GEO. E. FISHER, *President Burlington Fruit Growers' Association.*

Our Markets.

Compiled from Reports received last week in June.

TORONTO.

Apples, new, Tenn., per basket	$ 1 00 to $ 1 25
Apricots, per basket	1 00 to 2 00
Beans, per basket	1 50 to 1 75
Cherries, small red, per basket	75 to 95
Cherries, red, eating, per basket	1 25 to 1 50
Gooseberries, large, per basket	1 25 to 1 50
Gooseberries, small, per basket	75 to 1 00
Plums, Cal., per small basket	18 to 19
Strawberries, per box	6 to 8
Tomatoes, per crate	2 00 to 2 50

NEW YORK.—The week opens with a higher temperature, and an active demand for all fruits and new vegetables, and market holding firm in prices. Fancy H.R. strawberries 12c. to 14c. per basket; Raspberries, 7c. to 10c. per cup; Cherries, 6c. to 10c. per lb.; Gooseberries, 7c. to 10c. per qt.; New Potatoes, firm at $4.50 per bbl.; Cabbage, L. I., $2.50 to $3.00 per 100; Green Peas, $1.00 per peck; Eggs, firm, nearly fresh, 18c. to 19c.; Leghorn, 22c; Spring Chickens, alive, 18c. to 20c. a lb.; Fowls, 12c.; Spring Chickens, dressed, 25c. to 30c.; Ducks, 12c. to 15c.; Dressed Fowls, 7c. to 9c. Market on dried fruit is weak, and at lower prices. Beans, Marrow, $2.40, medium, $2.30; White Kidney, $2.40; Hay, No. 1, 60c. to 80c.; No. 2, 60c. to 70c.; Rye Straw, 65c. to 80c.

BUFFALO.—Cherries, 75c. to $1.00 per 12 qt. basket.

MONTREAL.—Cherries, 75c. to $1.50 per 12 qt. basket.

BROCKVILLE.—Cherries, 75c. to $1.00 per 12 qt. basket.

Our Book Table.

BOOKS AND REPORTS.

HOW TO GROW CAULIFLOWERS. By A. A. Crozier, Botanist, Iowa Experimental Station, and Secretary American Pomological Society.

This work is based on seven years' experience by the author in growing Cauliflower for the Chicago market. There is no more exhaustive treatise on any cultivated vegetable. 200 pages, cloth; price, $1.50. Published by Register Publishing Company, Ann Arbor, Michigan.

REPORT OF FLAX AND FRUIT COMMITTEE. New Zealand, 1890.

We have received a copy of this report per favor of Mr. Hobbs, M. H. R., Auckland. He encloses in his letter a peach leaf affected by an aphis which exhausts the trees in that country. He asks us the name, but not enclosing a specimen we cannot reply. In his evidence before the Select Committee of the House of Parliament, Mr. Hobbs makes very kind mention of this journal as being valuable to fruit growers even in New Zealand.

REPORT OF THE DAIRY COMMISSIONERS. J. W. Robertson, Ottawa.

A voluminous and very interesting book, free to all applicants.

BULLETIN II., Central Experimental Farm. Prepared by Jas Fletcher, Entomologist. This interesting bulletin contains recommendations for the prevention of damage by some common insects of the farm, the orchard and the garden.

THE DOMINION ILLUSTRATED is a splendid weekly journal. It not only contains a series of interesting tales, but is up with the times in literature and art generally. The illustrations are excellent, and deal principally with Canadian subjects. Such an undertaking should prosper. It is published by the Sabiston Publishing Co., Montreal.

GENTLEMEN ACTING AS AGENTS

for this Journal, will find this a favorable time to secure lists of new subscribers. To anyone sending in THREE new names and $3.00, we will forward a beautifully bound volume of the CANADIAN HORTICULTURIST, number I, II, III, or IV; and for every list of FIVE, a beautifully bound volume of the same, either VII, VIII, XI, XII, or XIII; and for every list of TEN new subscribers, the following package of trees, packed and sent free by address in spring of 1892. The trees are five or six feet high, and such as are usually sold by nurserymen: 1 Princess Louise apple tree, 1 Yellow Transparent apple tree, 1 Catalpa Speciosa tree, 1 Niagara grape vine, 1 Mill's grape vine, 1 Saunders new black currant.

The subscribers may have in addition to the Journal, a copy of our Report, and an unbound volume of the CANADIAN HORTICULTURIST, either volume 1, 2, 3, or 4, or the Journal from date to end of 1892, for usual fee of $1.00.

We hope to be of special service to fruit growers, by giving frequent market quotations—sometimes weekly, in the height of fruit season.

Outfits for canvassing, including sample copies, posters, envelopes, etc., will be sent FREE on application. Address

L. WOOLVERTON,
Secretary of the Ontario Fruit Growers' Association,
GRIMSBY, ONTARIO.

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Hartford City, Ind.

DUDLEY & BURNS, Printers, Toronto.

The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

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Feb. 12t

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THE

Canadian Horticulturist.

Vol. XIV. 1891. No. 8.

THE DOYENNE BOUSSOCK PEAR.

IN placing before our readers the colored plate of the Doyenne Boussock pear, we do not make any pretention of introducing a variety that is at all new, but an old acquaintance, which, after enduring many years of faithful trial, has gradually come to the front as one that is profitable to grow in the commercial orchard. It is not a native of America, but a foreigner, having been introduced at an early date from Belgium. The tree is a vigorous, upright grower, with a spreading head. Mr. P. C. Dempsey, in speaking of this pear at the summer meeting of the Ontario Fruit Growers' Association at Picton, in 1888, stated that he had grown it for twenty years, and esteemed it very highly indeed. His trees had reached a height of some twenty feet, and were abundant bearers, often yielding as much as five or six bushels to the tree. So far his trees have also been quite free from blight, which is the terror of pear growers generally. Flemish Beauty's standing near had long ago succumbed to this disease, while his Boussocks are healthy and vigorous.

This pear can hardly be classed among the best dessert varieties, being estimated by most people as inferior to the Bartlett in this respect. It is, however, free from the musky flavor of the Bartlett, and possesses just enough acidity to make it one of the very best of pears for canning purposes. Mr. Dempsey thinks that it would be impossible to plant too many Boussocks in the vicinity of a canning factory, for no pear is more desirable for sealing down. As a general

market pear, it is highly to be commended. In a basket it has a prettier appearance than even the Bartlett, and when in competition with that variety, will bring an equally high price, besides having the advantage of ripening a few days later.

Mr. McKenzie Ross, of Chatham, stated at the meeting held there in 1887, that he had been growing the Doyenne Boussock in his orchard, and found that it would produce twice as many pears to the tree as the Bartlett. We give in this paper the experience of others rather than our own, because our trees at Maplehurst have not yet come into bearing. We shall be pleased to receive the testimony of any one in Ontario who has fruited this pear, for publication in the next number of our journal.

Mr. A. McD. Allan, of Goderich, speaks of the Doyenne Boussock pear in the following terms: "This is one of the most valuable for the general planter; a strong grower and a very regular bearer of fine, large fruit, good in quality, and always commands a good price wherever the Bartlett will sell. I have known it to be bought and sold as Bartlett. I am glad you are going to give a plate of it in the HORTICULTURIST, as it deserves to be kept before the public."

P. C. Dempsey, of Trenton, writes under date of July 21st: "The Doyenne Boussock pear I have grown for more than twenty years. With me the pear is a good grower on sand, clay or loam, and I have never seen one blighted branch, though other varieties all around it have been blighted. The fruit is always large and firm, if not allowed to overbear. Sometimes it needs thinning. I consider it one of the best market pears we have, and I believe it to be one of the most hardy.

The following description of the Doyenne Boussock pear is taken from "Downing's Fruits and Fruit Trees of America":

"Fruit varying in form, obovate, inclining to pyriform, or roundish obtuse obovate. Skin rough, deep yellow, netted and clouded with russet, with a warm cheek. Stalk rather short and stout, inserted in a round cavity. Calyx open. Basin shallow. Flesh buttery, juicy, melting, sweet, aromatic, and excellent. Very good. September and October."

BUCKWHEAT FOR TREES.—The North Dakota *Farmer* says that two years age a Central Dakota farmer planted five acres of box elder and cottonwood trees one year old, having previously prepared the land. He then sowed buckwheat quite thick, which grew luxuriantly, and being left uncut, served as an excellent mulch, protecting from the hot sun of July and August, the cold winter, and alternate freezing and thawing of early spring. The land was well seeded from the first crop, and another heavy crop was allowed to grow last year, and left on the ground as before. The trees have stood both winters well, and the percentage of loss is very small. The buckwheat straw subdued the weeds and saved the labor of repeated cultivation.—*O. T.*

NOTES FROM MAPLEHURST.

THOUGH chiefly used as a commercial orchard, in which are cultivated on a large scale only those varieties which are most profitable, yet so many new varieties are constantly sent in for testing that it has become necessary to set aside a portion of the ground for their reception, and to take notes of their behavior. In doing this we shall in no way encroach upon the experimental station work, as such undertakings are too expensive for private individuals, and require a farm wholly devoted to that line of operation; our plan will be to simply try those fruits, new or old, which experimental stations have first tested and recommended, and give to our other fruit growers our estimate of their value from a business point of view.

STRAWBERRIES.—Of about sixty varieties of strawberries under trial, we have discarded all except about a half dozen for the market plantation. No money can be made, in our opinion, from the Ohio, Burt, Pineapple, Itasca, Cloud, Seneca Queen, Belmont, May King, Downing, Old Ironclad, Cumberland or many others; even the *Crescent* is too soft and often too small. *Parry*, though promising fine, because its berries stand up above the leaves and are a fine size, disappoints one's expectations when quarts are to be counted. *Jessie* is magnificent under favorable circumstances on moist soil; and, for the table, it is one of the best, in our estimation, for it is very large, fine shaped, a good color and of an excellent flavor; but for market it disappoints one, for it gives us few quarts to the acre, and on dry soil it is a scant bearer and the fruit is small.

For market we would be inclined to head the list with *Bubach*, for it averages larger than any other variety, and is at the same time very productive, even in the dry season. The chief fault is that it is not very firm and will not keep very long. This season we received nearly double for this berry than we did for the Crescent.

Saunders (*Little's No. 10*), which originated with our old friend, Mr. John Little, compares favorably with the Bubach, both in size and productiveness; the fruit is large and conical, slightly flattened, with several depressions; the color is a deep red and glossy; flesh is sprightly and agreeable.

Haverland and *Warfield* have already had a good deal of attention in these columns, and we think deservedly, and especially the former, which is a large and very attractive looking berry.

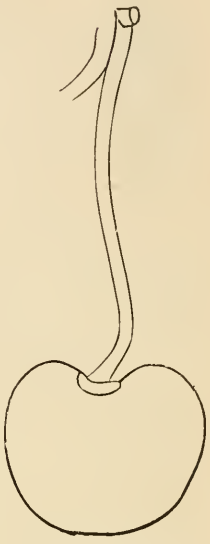
Logan is a new berry from Indiana, and the plant is thrifty and productive. The berry is large and showy, roundish and even in form; quality is good, and altogether it is very promising.

Eureka originated in Ohio, and is a very vigorous and healthy grower. The berry is large, firm, conical, chopped off at the point. The quality is good.

These six are our choice for the market garden; perhaps we shall include the *Williams* after a year's trial. Mr. Greig has favored us with one hundred plants for testing, and our report will appear next season.

THE CHERRY CROP this year is something extraordinary. Given a crop like this, and with such immunity from rot as we have this season, and no small fruit crop would pay better. Even the Yellow Spanish, Rockport Bigarreau, Napoleon Bigarreau and the Elton, though overloaded with fruit, have been harvested without a sign of rot.

The great problem of gathering has been solved in the Niagara district by the employment of Indian labor. Hundreds of Indians and squaws from the Indian Reserve at Brantford are tenting about and picking fruit; and the general testimony of growers is that the work is well done and that these people are honest and respectable. Our crop ran over 500 baskets this season, many of which must have wasted on the trees but for their aid.



REINE HORTENSE.

Reine Hortense is the finest cooking cherry grown at Maplehurst out of some twenty-five or thirty varieties. It is a vigorous growing tree and quite productive of fine large fruit; the skin is a bright, lively red, somewhat marbled and mottled; the flesh is very tender, with just enough acidity to class it among the sour cherries and to make it a delicious morsel. It is just now, 11th July, ripening in the garden, and is preferred by the good housewife above all others, as a cooking cherry.

This cherry reminds us of one of another very similar variety, the *Empress Eugenie*, which has similar excellent characteristics; and so long as our tree endured, no other cherry was wanted for cooking or canning. It grew to a fine size, with an open spreading head, indeed it equalled in strength of growth the most vigorous of the heart cherries; but, like many of the Dukes and Morellos, it is badly subject to black knot, and in the end it had to be cut down and burned. We notice that the Reine Hortense is also being effected by the same disease, even worse than the Kentish or the Early Richmond. Still, we have confidence in being able to save our cherry trees from this trouble, so long as we are careful to cut off each knot on its first appearance. Our late Kentish trees were almost covered with them two years ago, but the faithful application of the knife was so effectual that we have had little or no occasion to use it since.

The *Vladimir*, received from the Association two years ago, is bearing abundantly this year with us, as we suppose it is doing with many others. We would like to receive reports from our subscribers concerning its hardiness at the north. The cherry is quite dark colored, and of a very mild, sub-acid flavor, with a slight touch of bitter. It is too small a cherry to be grown for market in Southern

Ontario. Has it any value at the north? for its chief point of merit is supposed to consist in its hardiness.

The *Montmorencys* seem to be excellent bearers. Some trees set out a year ago are already doing their best to give us a good crop of fruit.

THE RASPBERRY ROOTBORER is quite bad with us in some of our older plantations. We noticed first some canes sickly and dying, and upon pulling them up and cutting open we found the enemy safely hidden away in his tunnel just about at the neck of the root. In appearance it so resembled the peach-borer (*Ægeria exitiosa*), that our foreman declared it one and the same; but further investigation proved it to be another species of the same family, viz., *Ægeria rubi.*

On inquiring of Prof. Jas. Fletcher, Ottawa, he responded as follows concerning this borer: "I fancied I had good results in treating this insect over a limited area, in a small garden, by applying wood ashes around the roots of the plants. Strange to say, I have seen the moths lay their eggs on the leaves nowhere near the roots. Another row I treated with carbolated plaster, as prepared by Prof. Cook, and was also successful with these. Until I stopped them they were entirely clearing out a fine lot of Brinkle's Orange and Cuthbert raspberries, which I grew in my garden at Stewartville. I took young shoots and transplanted them to another part of the garden, keeping them well treated, and then I never could find another specimen."

GROUND BONE AS FERTILIZER.—In a report on experiments made at the New Jersey Station with ground bones as a fertilizer, it is pointed out that ground bone is both a phosphate and a nitrogenous manure, insoluble in water, but when in the soil is decomposed and yields its constituents to the feeding plant in proportion to the fineness. It varies but little in composition and is less liable to adulteration than most fertilizers. They, in fact, are usually pure. Ground bones have a tendency to cake, and to avoid this the manufacturer may use other substances, which, while aiding mechanically, reduce the chemical value of the mixture. Raw bone is most usually pure, but the fat it contains renders it less easily decomposed. Bones having served the purpose of the glue maker are low in nitrogen and very high in phosphoric acid. The method now employed of steaming the bones under pressure improves their quality without altering the amount of the plant food ingredients. As the value of ground bones depends upon composition and their fineness, a mechanical as well as chemical analysis is required to determine their value. The farmer must determine by crop tests which grade he should buy—whether, for example, pay a dollar for ten pounds of phosphoric acid in one condition, or for eighteen and a half pounds in another form. Average wood ashes are worth $9 per ton, but the best vary considerably.—*Fruit Growers' Journal.*

MILDEW OF THE GRAPE.

HE disease, particularly referred to in the following, is known among viticulturists as "downy mildew," "brown" or "gray rot" of the grape, and to scientists as *Peronospora viticola*, and was very severe last year in many grape growing districts. It has been particularly destructive in the Eastern and Central States, and also in Western Ontario. Last year it was prevalent in vineyards in the Province of Quebec, and also in the Ottawa Valley.

As a rule it is first noticed on the fruit when about half formed, presenting a downy and frosted appearance, which gives place to a grayish-brown in the later stages. The berries shrivel and fall to the ground when slightly shaken. Beginning with one or two varieties in the vineyard, the disease if allowed to run its course will spread rapidly, attacking other kinds, which were at first entirely exempt.

It usually affects the leaves and wood later in the season, sometimes in the case of early varieties after the fruit has been gathered. This stage of the disease was prominent as affecting the Roger Hybrids in the Experimental Farm vineyard last season.

At first it is seen on the upper surface of the leaf shown in brown spots, while the lower surface presents the frosted appearance resembling that form of the disease affecting the fruit. This particular leaf form is not easily detected on grapes having the thick pubescent leaves characteristic of the Concord family.

TREATMENT.

Carbonate of copper	2 oz.
Ammonia	1½ pints
Water	25 gals.

As soon as the mildew made its appearance last year on our vines they were thoroughly sprayed with the above mixture. Two applications and the removal of all diseased berries had the effect of checking the spread of the malady, but at the same time demonstrated—when compared with the results of my former experiments—that the proper line of treatment leading to complete success, lies in the *early application* of the remedy.

The following is the course of treatment planned for the vineyard of the Experimental Farm this season:

1. All prunings, leaves, etc., to be carefully burned.

2. When vines are uncovered spray them—including the posts and trellises—with a simple solution of copper sulphate (blue vitriol) 1 lb, dissolved in 15 gallons of water.

3. Spray with the ammoniacal copper carbonate using the formula already given soon after the fruit sets; make two or three additional applications at intervals of ten days or two weeks, as the necessity of the case seem to demand.

4. Remove and destroy diseased parts of the fruit and foliage.

Bulletin 10, Experimental Farm, Ottawa.

PLAIN HINTS ON FRUIT GROWING—NO. V.

KEEP THINE OWN VINEYARD.

THERE are three aspects under which profit is realized by the successful tiller of the soil

1. That for which by far the greater number engage in it, viz., to make money or *temporal gain.* "Will it pay?" is about the first question that is asked by the many who are about to launch upon the tide of effort in gardening and fruit growing. And the answer to this question, affirmatively, depends so muc hupon the right judgment, well directed effort and *perseverance,* which must necessarily be brought to bear in order to succeed, that it is little wonder that many fail to make it pay.

Many, who have succeeded in various lines of effort in business and the professions, think that it is an easy matter to retire on a piece of land and "go to gardening." Others again who have failed in everything else, think that, as a "dernier resort," they can fall back on gardening as a paying occupation. But without experience, or a knowledge of the obstacles they must surmount, they go at it, like shooting an arrow at a venture, and, ten to one, *fail.*

Others again, sit quietly down, count well the cost; look on both sides of the question, and in the face of all possible chances of success or failure, grasp the practical and put it into execution, and, ten to one, *succeed.* And when success in a financial point of view has crowned their efforts, and they have mastered the situation fully, they can enter upon the

2nd aspect of profit, which is, *physical health.* In order to enjoy a good degree of bodily health and vigor, there should be an easy mind in a sound body, and both have that action in the proper season, which causes a relish of both *food* and *rest.* These rightly enjoyed, with all care and anxiety kept under foot, their recipient is prepared to enter upon the

3rd aspect of profit, viz., *a devotional frame of mind.* If we never rise above the financial or physical gains of our occupation, we are but poor indeed in the field of pure enjoyment and real profit. If we can go out into our gardens and lay aside all carping cares and temporal distractions, and rise into the sublimity of meditation upon the works of our Heavenly Father, then we can render a tribute of praise and thanksgiving for all that we are privileged to enjoy, and take both courage and comfort in the pursuit of the noblest of all earthly callings, the tilling of the soil, in its various aspects and varied returns.

As a prolific help to our three-fold means of enjoyment, one would earnestly present the thought contained in the heading of this paper, "*Keep thine own vineyard.*"

It pays in a financial sense to look after your garden or farm, in *person,* not to trust to careless employees, who, oftener than otherwise, think of putting in

the time instead of furthering the interests of their employer. Be up in the cool of the morning, take the hoe or spade in hand *yourself*, put in an hour-and-a-half at some profitable effort before breakfast, and it will not be long, if you *persevere* before you will see how it will pay financially. Then you will have a hearty appetite for your breakfast, and you can eat so as to strengthen your body for four or five hours, honest toil before the dinner hour. If you have hired help, your presence with them in the work will inspire them with respect and confidence, and they will work with a better relish if the "boss" takes a hand with them. Besides you will have a better knowledge of what is to be done and how to direct labor to advantage, then if you trust everything to a "foreman" as some do. *Be your own foreman*, and you will not only profit financially and physically, but you will be able to sympathize with the laborer, and be more inclined to humility in your intercourse with your fellow-men around you, a quality very precious in the sight of God and man.

There are more of the elements of success wrapt up in your own individuality than you may think, and if properly applied they will render their consequent fruits in due season. This may seem like foolish talk to the man who lies in bed to seven or eight o'clock, and gets up to breakfast without breathing the fresh air of the morning; but to the practical man, who hopes to succeed and *enjoy* his success, it is quite in place if they put it in practice, as it has been the privilege of the writer of this paper to do. It is said of the late Peter Henderson, who was a noble example of success in the garden industry, that he personally superintended his various lines of effort, and at one time an editor of a horticultural magazine in Boston, who had published some of his contributions, visited him at his garden near New York and found him on a manure pile turning it as a preparation for further use. There is true grace in the *come down* principle, from the sublimity of ideal conception to the practical needful effort of every-day experience. It is well to have right theoretical conceptions, but if not accompanied with practical manifestations, they are of little or no value. Patience, perseverence, calmness of mind, trust in God, and a teachable spirit are all necessary if we would each keep his own vineyard, and these, accompanied by a proper application, in their due season, of such means as produce the required results, all combine to develop the three-fold profit to purse, body and soul.

Nepean, July 10th, 1891. L. FOOTE.

ROSE BEETLE AND HOT WATER.—The R.N.Y. reports having experimented with hot water as an insecticide and been quite successful. The rose beetle was found to succumb to a spray of water heated to 125 degrees, and was rapidly exterminated, and some bushes were completely cleared of them by the use of this simple remedy. The potato beetle was found able to endure water of this temperature; but it was destroyed by the application of water of a temperature of 150 degrees.

PACKING AND MARKETING FRUIT.

PICKING, marketing and selling are all factors so important and so well understood that it would seem of little use to mention them, and yet often choice fruit is so badly handled in picking and so neglected in sorting and packing that it cannot be sold with profit to the producer. The fact is, that many good men, conscientious as to everything else, are exceedingly neglectful, to say the least, in handling their fruit, and then complain bitterly because their commission merchant, or whoever handles it, fails to render returns corresponding with quotations on choice grades. My friends, "this ought not so to be." A man's name or number on a package of fruit should be a guarantee of its quality, and instances there are where such is the case, in which fruit, bearing such and such trade marks, is sold every year far above market quotations. Such fruit, however, is carefully graded, and everything at all imperfect is marked *number two* on the package. Better that all should be marked number two than that your character should bear the stigma of that work. A few years since, early one morning while looking over the markets in one of our eastern cities, and engaged in conversation with a salesman, a passing buyer enquired the price of some quinces. The quotations given were one dollar per keg higher than the market rates. This raised a question from the purchaser, which was answered at once by the salesman as follows: "Those are guaranteed good, sir; no imperfect specimens in those packages. We never open packages that carry that mark. If they do not bear our recommend, return them at our expense and we will return your money." It so happened that I knew who they were from, and I should say that the adoption of this careful plan of putting up their fruit has led to a large direct trade as between the consumer and producer, by means of which the party frequently saves the expense of middleman, and in addition gets extreme outside prices for their fruit. The fruit grower cannot too carefully guard his reputation for honesty and fair dealing, and I am sure a strict adherence to such principles on the part of all would greatly aid to raise the character and value of the products of Western New York fruits to a point where they would command the highest price of any upon the market.—S. D. WILLARD, *Geneva, N. Y.*

CRANBERRIES IN AMERICA.—Prof. L. H. Bailey, of Michigan, writes to the London *Garden*, that "it is only thirty years ago that the Cranberry was known in a wild state; now it is much improved, and several good varieties have been produced. He states that in New Jersey alone there are some 5,200 acres under cranberry culture; that the leading cranberry-growing States are Massachusetts (near Cape Cod), New Jersey, Wisconsin and Connecticut, and that the entire crop in the United States last year from cultivated plants was probably not far from 600,000 bushels.

THE WORLD'S FAIR HORTICULTURAL BUILDING.

MAGNIFICENT preparations are in progress at Chicago for the World's Fair of 1893. No money is being spared by our American friends to make this exhibition equal, if not surpass, the famous Paris Exposition of 1889. Already more than $10,000,000 have been subscribed by the various States of the Union, besides which, as much more is expected from gate receipts and other privileges. A vast extent of land has been devoted to the purposes of the fair, including several parks, such as Washington Park and Jackson Park, the latter of which has a frontage of two miles on Lake Michigan. In all, there will be nearly one thousand acres set aside for the use of the exhibition. Artificial canals and lakes are also being made, which will add very much to the landscape effects.

The directors are already well assured of a grand success, so far as the display is concerned, as some twenty-one foreign nations have already accepted the invitation to participate, including Chili, Turkey, Denmark, etc.

We have no room in this journal to speak of the great Machinery Hall, costing some $450,000; or the great Administration Building, the architectural gem of the exhibition, costing some $750,000, and, strange to say, made of material which will only last for about two years; nor of the great model of the battle ship, "Illinois," which to all appearances will be genuine, made at a cost of $100,000, and an exact model of a ship costing $3,000,000.

It is more in our line to speak of the Horticultural Hall, a building designed by a Chicago architect and to cost some $400,000. It is 1,000 feet in length and 286 feet in its extreme width. The plan is a central pavilion with two end pavilions, which connect with the central by front and rear courts, and these are decorated in colors and planted with ornamental flowers and plants. In the centre there is a crystal dome 187 feet in diameter and 113 in height, in which will be exhibited the tallest palms, bamboos and tree ferns. Here will be exhibited all varieties of fruits, plants, flowers, wines, seeds, horticultural implements, etc.

The accompanying engraving represents this building and is one which appeared originally in the *Scientific American*.

It has not yet been decided as to what extent the Ontario Fruit Growers' Association will take part in the fruit exhibit, but it is most desirable that a large and creditable display of Canadian fruit should be made at this fair, and there is no other organization in Ontario so able to take it up as our Association, providing that the necessary funds are provided.

HORTICULTURAL HINTS.

MARKETING THE MELON CROP.—The shipment of the melon crop to New York from the South has begun. The crop is a very large one and growers realize that great care must be taken to realize good prices. Accordingly they have asked the railroads to help them by keeping out all melons under weight, 18 lbs., and those sunburned, deformed, green or overripe. The crop this year is estimated at 44,000 acres and the season lasts from June until October, beginning with Florida melons and ending with those in the North, Jersey melons ripening during September. The Southern melons are shipped over the Atlantic coast dispatch line. They are packed in refrigerator cars, which are so timed as to arrive in New York in the night, and are not touched from the time they arrive until there. Receivers are compelled to pay the freight charges, which are $120 for the all rail route and $100 for the part steamer. Each car contains 1,200 melons. The Georgia melon growers' association met at Albany, Ga., on June 5th and decided to employ six commission merchants instead of one as formerly. They also pledged themselves to ship no melons under 18 lbs., nor any defective ones.

THE FIRST PRIZE STRAWBERRIES.—If you want the finest and nicest strawberries next year do not allow your plants to set runners. Keep them cut off and where every runner is cut off there will come up a fruit spur next spring that will bear many berries. The quickest and easiest way to keep back the runners is to go through the patch every week with a good sharp hoe. Do not cut off merely the runners, but take all the weeds as well. It is necessary to keep the ground cleared of weeds so that the plants may receive all the strength of the soil. Running the cultivator through the patch every ten days or two weeks will help in time of drouth and make the hoeing much less work. If you want fine berries and are willing to give the plants a little extra care, the hill system is by far the best. Where the matted row system is followed the weeds are a little easier kept down, but the berries will not be as large or handsome. In starting the matted rows the runners are allowed to take root between the hills.

A NEW WAY OF SELLING.—The plan of selling fruit at auction is meeting with much favor whenever tried. In New York, oranges, lemons and many tropical and sub-tropical fruits are sold this way. The first carload of 1,200 boxes of cherries that came into the Chicago market from California this year were put up in that way and were all sold in twenty minutes. A consignment of fruit is taken and two or three samples are opened and looked at by the buyers. The auctioneer announces so many packages of such a mark. The bidding begins and the highest bidder can take the whole lot or as many packages as he wants. By this plan the buyer pays only what a thing is worth and the seller is sure of getting all that his goods will bring.

HOW TO PAY FRUIT PICKERS.—How do you pay your berry pickers? The easiest, best, quickest and most satisfactory way to all hands, is by a system of tickets. These tickets are similar to those used by milk peddlers in cities and villages and are made of stiff cardboard an inch and a quarter wide and two inches long. These should be of different colors so as not to get them mixed. Have printed on the tickets of one color your name and the amount which it stands for, as 1c., 10c., and so on, thus:

ONE CENT	TWELVE CENTS
G. S. FULLER.	ORCHARD FARM.

If your picking tray holds eight baskets you should have a lot of 8 and 16c. tickets so as to give one ticket for a full tray. Tickets of the denominations of 1c., 4c., 8c., 16c. and $1 are found to be all that are needed and make change very readily. The dollar tickets are to change with the pickers at the end of the day's work. These tickets can be cashed with money at night or at the end of the week or season, but the pickers should retain them until they are changed for money. This system saves the keeping of an account with each picker, which takes a long time to write up and always leads to a dispute. Where you keep accounts, pickers often insist that you did not credit them with all they have done, but with this system there is no chance for a dispute, for you pay them in money for only what tickets they present. Many use these tickets and have quarts and pints printed in place of cents, but this is not so satisfactory because a uniform price is not paid all through the season, and for all kinds of berries and small fruits.—*Farm and Home.*

SALICYLIC ACID.—In a recent study of so-called "Prohibition beverages," which contain not more than one per cent. of alcohol, Prof. C. F. Robinson, of Bowdoin College, has made some interesting discoveries. As a result of them, he cautions the public against indulging in the use of these drinks, assuring them that they are more harmful than beverages of the orthodox kind, containing much more alcohol. This arises from the fact that these milder beverages contain salicylic acid, introduced for the purpose of preventing fermentation. This drug, he says, used in any preparation of food or drink acts with dangerous effect on the kidneys and is almost certain to produce Bright's disease. We have previously warned our readers against the use of such preservatives. A salt widely advertised to preserve butter, was shown by analysis to contain this drug. All recipes and powders hawked about the country and sold at fairs, and which are guaranteed to preserve fruit without hermetical sealing and to keep cider perfectly sweet, are nothing but salicylic acid, and their use has caused thousands of cases of kidney disease. Leave all such preparations in their owner's hands. They are dangerous to health.—*Fruit Growers' Journal.*

The Kitchen Garden.

GROWING CAULIFLOWERS.

An excellent book on "How to grow cauliflowers" has been written by Mr. A. A. Crozier, Botanist, of Ohio Experiment Station, and Secretary of the Pomological Society; cloth, pages 230; and published by the Register Publishing Co., Ann Arbor, Mich., 1891.

This being an age of specialists, books on special subjects are needed nowadays, rather than those dealing in generalities. This book, devoted entirely to cauliflower growing, is exactly in the right line and must be invaluable to those who are situated advantageously for the prosecution of this industry. Two or three requisites seem necessary for success with it, and chiefly a rich loamy soil, and convenience for irrigation. Such a soil is found in the eastern part of Long Island, in the county of Suffolk, where nine-tenths of the cauliflowers are grown which come into the New York markets. So well is the soil of this island adapted for growing cauliflowers that the revenue thus derived from this county is $200,000 per annum. Peter Henderson claims to have made in a prosperous year as much as $1,500 off of an acre of cauliflowers, and $300 per annum is said to be a very ordinary income. It is claimed by some that there is more money in the growing of cauliflowers than in celery, even providing the work can be carried on successfully.

But it is not in every place or by every man, that such success can be attained. One of the chief difficulties in growing this vegetable is in securing heads. A New Jersey market gardener says he only got 500 heads from 2,500 plants he had set out. He attributed the failure to late planting. But, on the other hand, success does not reward the efforts of many who understand the business, and it is for those persons who wish to achieve the best results that such a book as Mr. Crozier's is written. It gives full information about soils, fertilization, planting, cultivation, keeping and marketing. It describes 150 varieties; it points out the enemies and how to destroy them. It gives the history of the vegetable and, in short, is such a complete work on that subject that we can recommend it with pleasure to our readers.

THE *Rural Home* remarks that beets are very easily grown and may be forwarded a week or two by starting the plants in the hot bed. Quite dry, sandy soil will grow good beets for early use. Sow in rows a foot apart and quite thickly in the rows so as to have some beet greens in June. The early Egyptian is the earliest and is a fine beet for early use. Dewing's Early is better for keeping. The Eclipse is very early and a first-rate beet.

THE CAULIFLOWER.

IN the cultivation of the cauliflower everything depends on keeping up a steady vigorous growth, for if the plants are checked in their growth, they are liable either to form small heads prematurely, or to continue their growth so late as to fail to head at all. Level cultivation is usually practised, the same as in ordinary field crops. Drawing the earth to the stems, as sometimes recommended and practiced abroad, is unnecessary, though with tall growing varieties it serves a useful purpose in preventing the plants being blown over by the wind. Cultivation should continue until the leaves are so large that they are liable to be broken off, or until the plants are nearly ready to head. The application of a mulch of manure or litter at the time cultivation ceases, is an excellent practice, though seldom resorted to. It is important that deep cultivation should cease at the right time, even if the hoe has to be used afterward. The crop may be seriously injured, or at least delayed, by cultivation after the plants begin to head. At this time the ground should be undisturbed so that the roots may occupy the entire soil. Dry weather, and the compact nature of the soil after cultivation ceases, check the growth of the plants, and promote the formation of heads, providing the plants have attained a proper age and size. The influence of a firm soil in promoting heading is also seen in the success with which the cauliflower can frequently be grown after peas or other early crops. In autumn the first sharp frosts appear to be particularly efficacious in starting the plants to heading.

IRRIGATION.—After heading has commenced is the time when irrigation is most needed. An abundance of water at this time will aid greatly, both as to the quantity and quality of the product, particularly if some fertilizer is added at the same time. Irrigation is not often practised in this country, except in the arid districts of the West, and, occasionally, with the early crop, near a few of our cities. In Europe, where labor is cheap, it is often resorted to, even where the water has to be carried by hand. Early in the season, if irrigation is needed, once a week is frequent enough to apply the water, but while the plants are heading it may be applied with advantage every day if the weather is dry.

BLANCHING THE HEADS.—The value of cauliflowers for use or market depends almost entirely on their being white and tender. To have them remain in this condition until fully matured, they must be protected from the sun. Heads which are left exposed become yellow in color, or even brownish purple, if the sun is very hot. Such heads also acquire a strong, disagreeable flavor.

There are various ways of covering the heads, but it is nearly always done with the leaves of the plant. Early in the season, when the weather is dry and warm, the work may be done during the heat of the day by lapping the leaves, one after another, over the head until it is sufficiently covered, tucking the last

leaf under to hold all in place. Or the leaves may be fastened by a butcher's skewer, or any sharp stick. In Florida, orange thorns are employed for this purpose. Care must be taken not to confine the heads too closely, or they will grow out of shape, besides being liable to heat and become spotted. Later in the season, when the weather is cool and damp, the leaves will be too stiff to be bent down, and the head must then be protected either by placing over it leaves broken from the outer part of the plant, or from stumps from which the heads have already been cut, or by tying the leaves together above the head. The latter is the usual method, rye straw or bases matting being generally used for the purpose. Merely breaking down the inner leaves upon the head is unsatisfactory, as the growth, both of the leaves and the head, soon causes the head to be exposed.

The artificial blanching of the head is most important early in the season, while the sun is hot; and the field should then be gone over as often as every other day for this purpose, taking two rows at a time. Later in the season, during damp, cloudy weather, heads will sometimes reach full size and still be of good color though entirely exposed. It is unsafe to leave them in this way, however, as a little change in color seriously affects their market value. Covering the heads appears also to cause them to grow larger and remain solid longer than they otherwise would, particularly early in the season.

RETARDING AND ACCELERATING HEADING.—It will sometimes happen early in the season that one desires to retard the development of the head until the convenient time for marketing. For this purpose the plants may be lifted when the heads are nearly mature, and set under a shed or elsewhere in the shade.

It may be well here to remind those who grow only a few plants in a garden, and who wish to prolong the season, that several cuttings may be taken from a single head if desired. A portion of the head should be left each time. Occasionally, but not often, a stump will sprout and form a second crop. A method of accelerating the formations of heads, which is practised in Ireland, may also be worth recording. It consists in slitting the stalk from near the ground upward toward the heart, and placing a stick in the slit to prevent the parts uniting. The soil is then drawn up around the cut, and the plant staked to prevent it breaking off. It is said that plants so treated will form their heads from six to eight days earlier than they otherwise would.

COOKING.—Four rules, never to be deviated from, may be laid down; first, that the cauliflower is to be soaked in salt and water for at least a half-hour before cooking, in order to drive out any insects or worms that may be lurking among the flowerets; second (if to be boiled,) when ready for cooking, the vegetable is to be plunged into salted, thoroughly boiling water; third, it is not to be cooked a moment after it becomes tender; fourth, to be served as soon as done. Neglect of any of these points is sure to result in failure, while a careful following of them will give a wholesome, delicate dish, and one that will be eaten with gusto and remembered with pleasure.

A very simple method of serving cauliflower is with milk and butter, after the manner of cabbage, but a more elaborate white sauce generally accompanies it. This is the familiar drawn butter sauce, to which may be added a little vinegar or lemon juice to give piquancy of flavor. Sometimes this sauce is varied by adding milk or cream to the flour and butter, when it is called, "cream sauce."—*From, How to Grow Cauliflowers, by A. A. Crozier.*

THE FRUIT CROP.

As the season progresses it is becoming more and more evident that the estimates which have already been given in this journal are correct, and that the crop of apples and pears will be comparatively light all over Ontario. In a few counties about half a crop is reported, but, for the most part, it will not be over one quarter of the average, either in apples or pears. Fortunately, however, the sample will be beautifully bright and clean, a great satisfaction both to the grower and to the dealer, saving the former much waste of fruit and much labor in picking, and giving to the latter much more satisfaction in the sale of the crop. Under these circumstances it is quite possible that our fruit growers may find the proceeds of their orchards more encouraging than in those years of great abundance, when much of the fruit is inferior and has either to be rejected or sold at a low figure. At the present writing the Red Astracan and Early Harvest trees are breaking down with their loads of fruit, but these are almost the only varieties of which such a thing can be said. As there are not very many early apples grown throughout our country in a commercial way, the price of these will not average very low. Indeed, they are at the present time starting at a high figure, being quoted at 40 cts. per twelve quart basket in Toronto and from 50 cts. to $1 in Montreal; while in barrels they are being sold at from $3.25 to $3.50. The "Trade Bulletin" seems to think that there is a good deal of humbug in our statements concerning the short crop in the Niagara Peninsula, because in spite of the statements last year that there was no crop in this section, there were harvested from it from eight to one hundred thousand barrels. This is probably an over-estimate of last year's apple crop, but, granting it correct, it simply shows to what an enormous figure a full crop would reach, should we ever be so favored as to have one. The whole country, from Hamilton to Niagara, is rapidly developing into one vast orchard and the importance of the industry in this section of country can scarcely be over-estimated. For instance, take Grimsby section, which is counted in many respects the fruit centre of this district, and look at the shipments by express during the year 1890, a year when there was really no crop at all, considering the number of orchards and gardens in this vicinity. That year the fruit shipments from this place by express were as follows: June, 1765 baskets; July, 4214; August, 3906; September, 6909; October, 3445. Total, 20,239 baskets!

The *plum* crop in most sections is very small, and, although in a few places something above half a crop was reported, yet even in these, according to the latest information, the ravages of the curculio have reduced the percentage exceedingly.

The early *peaches* are beginning to ripen, but they are scarcely up to their usual size, and are dropping very considerably from the attack of the curculio. The yellows, too, is showing itself on many of the young trees, a disease which causes the fruit to be unmarketable, and is so rapidly clearing out many of our finest peach orchards.

A fairly good crop of *apples* is reported in the Annapolis Valley, the great apple producing section of Nova Scotia, but in New York State the apple crop is no better than it is in Ontario, and that means a general failure.

The following are some of the latest reports from our correspondents:

NEW YORK STATE—*Sir*,—The prospect is that there will be a very full crop of peaches in Western New York. Apples are a failure so far as Baldwins are concerned, and that variety being the leading one in Western New York, the crop of apples must be short. There is a very fair standing of Greenings and some other varieties. The crop of pears is a full average; crop of plums about two-thirds. The quality of the fruit, from present appearances, will be excellent.—S. D. WILLARD, *Geneva, N. Y.*

SIMCOE COUNTY—*Sir*,—Apples in this county will not be more than half a crop. Since my last report they have fallen from the trees to such an extent that, although there was a prospect then for a fair yield, they will not now average more than half a crop. Cherries, where not destroyed by the black knot, were very fine, and have yielded a full crop. Plums, badly damaged by the curculio, but will still be a fair crop. Pears are not much grown here; the blossoms were damaged by frost, and the yield will probably be light. Grapes, coming on well, but very few are grown in this locality. I believe apples will be very fine this year as to quality; they seem to be free from fungus and scab, and, so far, there are very few wormy ones. Fruit trees of all kinds look remarkably healthy and are making great growth.—G. C. CASTON, *Craighurst, Ont.*

Sir,—Plums will be from 65 to 70 per cent. of an average crop. The curculio is reducing it very considerably.—G. M. AYLESWORTH, *Collingwood, Ont.*

Sir,—Taking 100 as a full crop, the following is my estimate in this section:—Apples, 50 per cent. of average crop; pears, 10; plums, 100; cherries, 100; tomatoes, late, 100; grapes, late, 80. The grapes were backward in coming in bloom, and since the wet are sending out fresh bloom, which is something new. There are large quantities of wild raspberries being brought into the market and sold at from 75 to 80 cents per ten-quart pail. CHAS. HICKLING, *Barrie, Ont.*

PEEL COUNTY—*Sir*,—Small fruits are a very average crop; plums will yield about 40 per cent. of average; apples about 25; pears 20.—A. MORTON, *Brampton, Ont.*

PERTH COUNTY—*Sir*,—With the exception of strawberries, small fruits in this section have turned out an abundant crop. Cherries were far more than were expected; plums are hanging on the trees in great quantities. Early and fall apples will be scarce, but the crop of winter fruit promises to be fairly good, that is, enough for home demands, but very little for shipping.—T. H. RACE, *Mitchell, Ont.*

WENTWORTH COUNTY—*Sir*,—The apple crop is light; very few Baldwins, Greenings better than most other varieties; pears light, except Duchess, which are very full; peaches full; early apples, very full; plums, full crop. From present appearances, grapes will be a very heavy crop and fine sample, very clean and healthy, no mildew on foliage and very little on fruit. Taking all varieties of grapes, the prospect could not be better.—M. PETTIT, *Winona, Ont.*

HURON COUNTY—*Sir*,—The prospect in Huron county for apples and pears is, generally, about one quarter a crop. Some small sections have a half crop, others bare and, I think, a quarter crop the outside figure now. The Ontario apple section wont give a quarter, taken all through.—A. McD. ALLAN, *Goderich, Ont.*

MIDDLESEX COUNTY—*Sir*,—By careful observation and inquiry in the north riding of Middlesex, the following is a fair estimate of the fruit crop in this part of the county. Apples, 40 to 50 per cent.; plums, 15 to 20 ; grapes, 40 : pears, 15 to 20 ; raspberries, 50 ; cherries, 60 to 75.—WM. DICKSON, *Parkhill, Ont.*

LINCOLN COUNTY—*Sir*,—As near as I can estimate the fruit prospects in this county, the apple crop will be about 40 per cent. I think the following is a fair estimate of the fruit crop : pears, 50 per cent ; peaches about 80 ; grapes, most varieties, about 90; plums about 95 ; quinces about 75 ; apricots about 50.—J. H. BRODERICK, *St. Catharines, Ont.*

Sir,—Plums are a heavy crop ; blackberries, the same ; apples a short crop.—E. MORDEN, *Niagara Falls, South, Ont.*

BRANT COUNTY—*Sir*,—The following is my estimate of the fruit crop in the County of Brant :—Apples, 35 per cent. ; Pears, 50 ; Peaches, 40 ; Plums, 50 ; Tomatoes, 100.—D. M. LEE, Paris, Ont.

VICTORIA COUNTY—*Sir*,—Apples will be rather less than average, probable three quarters of average in this county. Pears not more than one half the average ; plums, the best crop we have had for many years ; grapes, little less than average. There is no scab on apples or pears, no mildew on gooseberries, injurious insects very few.—THOMAS BEALL, Lindsay, Ont.

FRONTENAC COUNTY—*Sir*,—I have examined several of the largest orchards in this district, and find that, on the whole, there will not be more than half a crop of apples. Our Brockville Beauty trees are bearing an immense crop ; Red Astracan and Duchess a fair crop ; St. Lawrence also fair crop. Golden Russet and other winter varieties hardly half a crop. There were no "tent caterpillars' about this year, which is remarkable when you consider that last year they were exceedingly numerous. The plum crop was very promising, but the curculio has made sad havoc with them. Very few pears are grown here.—D. NICOL, Cataraqui, Ont.

PRINCE EDWARD COUNTY—*Sir*,—Apples are not more than one quarter an average crop, but the sample will be first quality, especially where spraying has been attended to. No spot to be seen. Pears are about one-eighth average, but the sample is good.—P. C. DEMPSEY, Trenton, Ont.

STORMONT COUNTY—*Sir*,—The prospect for fruit in this district is about as follows : Grapes, much damaged by late frosts ; apples, half a crop, with few exceptions ; bud moth and the leaf roller have been particularly destructive.—W. S. TURNER, Cornwall, Ont.

PELEE ISLAND—*Sir*,—Prospects good for a full crop of grapes. Catawba, 95 per cent. Concord and all other grapes 90 to 100. Young grapes lying on the low grounds were badly used up by the late frosts ; old vines on wire not hurt.—E. WARDROPER.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

FRENCH GRAPES came to London, England, about the 1st of July, and sold at 50 cents per pound. Such prices would pay Canadian growers!

LAWN GRASS.—Messrs. Steele Bros. criticize a paragraph of page 216 and state that Kentucky Blue Grass fit for lawn seed has been sold wholesale this season as high as $2.75 per bushel, and that some seed in their mixture has cost them as high as 60c. per pound.

POTASH FOR INSECTS.—It seems that solutions of potash have been tried at the New Jersey Experiment Station, and found to possess merits as insecticides. Muriate of potash has been tried at the Popular Gardening grounds, near Buffalo, at the rate of one pound dissolved in two gallons of water and sprayed upon the currant bushes for the worm, and on the plum and cherry trees for the aphis. Two days after the insects were found to be entirely cleared off the foliage.

LIME used in connection with arsenites, has been proved by the Ohio Experiment Station to render the latter quite harmless to foliage. Mixtures were made of London purple and Paris green in water, in proportions of 8 ounces to 50 gallons of water in each case, and the same with two pounds o lime added. The applications without lime were injurious to the foliage, especially the London purple and water, by which nearly eighty per cent of the foliage was damaged; but in the cases where the lime was added, no damage whatever was observable. This is an exceedingly important discovery to us fruit growers.

KEEPING QUALITIES OF THE VERGENNES GRAPE.—Mr. Watson Orr, of Winona, placed on our table some bunches of this grape on the 23rd of June, samples of a lot which he was just placing on the market. They were in excellent condition, as plump and fresh as if just gathered from the vines. Although the quality of this variety is not rich, yet it takes well in the market on account of its rich amber color It is probably the best keeping grape we have. Mr. Orr has not even kept a low temperature in his cellar. He first allowed the stems to dry, then packed the grapes in cork dust. He thinks he could keep them in fair condition until grapes come again.

MICHEL'S EARLY STRAWBERRY is well spoken of by Judge Miller, a prominent fruit grower of Missouri. He says: "This variety has come to stay. The berry is medium in size, pretty, firm, handsome in color; has a nice neck to pick or to hull; carries its fruit well up, ripens eight days before the Crescent, lasts nearly a month, and is in quality among the best; will probably do away with Crescent." We have it in our experimental grounds at Grimsby, and it bore its first crop this season. We are not particularly struck with it in the matter of size, but certainly it is remarkably early, and this particular merit may make it desirable for the market garden.

Since writing the above we notice this berry being criticized unfavorably in the R. N. Y., as being small, unproductive and very little earlier than Crescent.

HORTICULTURE AND AGRICULTURE, as a study in schools, may possibly be in place, but we have grave doubts concerning the beneficial results, unless taught practically. The tendency of our system has always been toward the theoretical; even natural sciences have been taught entirely from books, giving the pupil no opportunity to become actually acquainted with the metals or plants about which they study. And now gardening and farming is to be taught in the same fashion, and that by persons who perhaps do not know a peach tree from an apple tree, or a Jersey cow from a Durham!

In this respect France is far ahead of us, for she has now some 3,000 elementary schools where the teachers train boys in practical gardening. Would it not be better for us to leave it out of our lists unless we are prepared to undertake it in a similar practical manner?

A MARKET BULLETIN will be sent out during August and September to such members of our Association as will send a post card to the Secretary asking for it. Prices current of Toronto, Montreal, London, Buffalo, and the British markets will be quoted.

CUCUMBERS FOR PICKLES.

The variety of pickles is numerous, but the pickle which commands more respect than all others is the little green cucumber. Without entering on the discussion of the sanitary view of pickles in general, or the cooling cucumber in particular, it seems evident that people will have and eat pickles of some kind; and it is most generally the cucumber.

Those who make pickle-growing a regular part of the crop rotation, do not plant the seed before the middle of June, and not later than the 10th of July; preferably before the 25th of June. Planted at this time the plants come into bearing in August and September. Two advantages are gained by the late planting, the cooler nights of late summer are favorable to productiveness, and the ravages of the striped bug are mainly escaped.

A moist soil is essential to raising cucumbers in their highest excellence. The cucumber runs its career in about ten weeks from planting the seed, so the ground needs to be well cultivated and enriched. It is a hopeless case to expect a good crop of cucumbers from hard, poorly prepared soil. Give the plants a generous amount of fine, decomposed manure in the hill; and a sprinkling of phosphate after they are half grown, makes them antic in the race for distinction. I think it has been proven that the cucumber patch can be fertilized cheaper with stable manure and a good proportion of chemical fertilizer mixed, than depending wholly upon barn dressing.

As soon as cucumbers of marketable size appear these should be pickled, as leaving them upon the vines exhausts the latter to the detriment of the crop. Where sufficient help can be procured for daily pickings, and is properly cared for, near a ready market, a crop of cucumbers for pickles is one of the most profitable crops a farmer can raise. A selection of the most suitable varieties, as in other specialities, is of much importance. Green Prolific is the first variety to name for pickling. Early Cluster comes next, then Cleveland Pickling, Early Russian, Early Frame and Boston Pickling.—*Vick's Magazine.*

GRAPE JUICE.—Select not-too-ripe grapes and put them into an agate preserving-kettle with one pint of water to every three quarts of fruit, and slowly bring to a scald, stirring them occasionally. Then dip out into a cheese-cloth bag, and drain over night. Strain tne expressed juice through another bag, and add sugar to suit the taste; then bring to a boil, skimming frequently and seal in heated glass cans, like fruit. This is pure, unfermented wine, suitable for communion wine. It is also recommended by medical men as an invaluable and unstimulating tonic. Other fruit-juices, for flavoring and beverages, can be preserved in the same way.

WHEN you hear a man on the street bawling out, "Ear yar resh s'rawbres ten sen squor," don't jump to the conclusion that he is indulging in Volapuk; he is only trying to sell strawberries in choice vendors' English.

Question Drawer.

A NEW TROUBLE IN VINEYARDS

SIR, —I am advised to write you concerning the strange condition which has come over my grape vines, which must be due to some disease. I enclose you some samples of the affected foliage, and would like to know the reason of their curious appearance. I noticed a year ago last summer that two vines of a certain variety showed a light color in the leaf early in the summer, and also on the fruit, before it developed properly. Then, towards fall, the leaves all wilted and fell off. One of these vines I cut out in October; the other is about used up this spring. The foliage came out as usual and looked healthy at first, but is now (July 8th) nearly all gone. What puzzles me is that all my other vines, with one or two exceptions, are turning pale in the leaf, and beginning to show signs of some trouble. I have examined the leaves carefully under a microscope and can find nothing to cause it, so I fear there is some trouble at the root. The vines have been bearing some ten years; the sub-soil is clay, well drained and very rich. I should be glad of any light upon this trouble, for I notice the same appearance on the vines all about town, and am afraid of a general loss of all our grapes.

J. B. FAIRBAIRN, *Bowmanville.*

SIR,—Nearly all the outdoor grapes in this section are infected with some new disease turning the foliage a yellowish color. I enclose a specimen leaf taken from a Concord vine in my garden. Could you give some explanation of this disease, and its cause?

D. FISHER, *Bowmanville.*

Having observed no such disease in our vineyards in the Niagara district, we have referred the samples and the question to Prof. Fletcher, Botanist, Experimental Farm, Ottawa, who writes as follows:

"The leaf of grape from Bowmanville is to hand. The yellow tint of the leaf is due possibly to an attack of Phylloxera on the root. This leaf does not show any mildew, but yesterday a similar leaf from the same place was referred to me, which shows a slight attack of the Peronospora. I think it would be well for your correspondent to examine the roots of his vine and see if they do not show the characteristic galls of the Phylloxera, which have so often figured in your reports and those of the Entomological Society of Ontario. I should also suggest the advisability of spraying this vine with ammoniacal carbonate of copper mixture."

In order that our Bowmanville friends may be the better able to judge whether it is really the Phylloxera that is doing so much mischief in their vineyards, we give here an extract from Mr. Saunders' admirable work "Insects injurious to Fruits," with the accompanying illustration: "During the first year of the insects' presence the outward manifestations of the disease are very slight, although the fibrous roots may at this time be covered with the little swellings; but, if the attack is severe, the second year the leaves assume a yellowish cast, and the usual vigorous yearly growth of cane is much reduced. In course of time the vine usually dies; but before this takes place, the lice, having little or no healthy tissue to work upon, leave the dying vine and seek for foods elsewhere, either wandering under the ground among the interlacing roots of adjacent vines, or

crawling over the service of the ground in search of more congenial quarters. During the winter many of them remain torpid, and, at that season, they assume a dull, brownish color, so like that of the roots to which they are attached that they are difficult to discover. With the renewal of growth in the spring, the young lice cast their coats, rapidly increasing in size, and soon begin to deposit eggs; these soon hatch, and the young ones shortly become egg-lay-

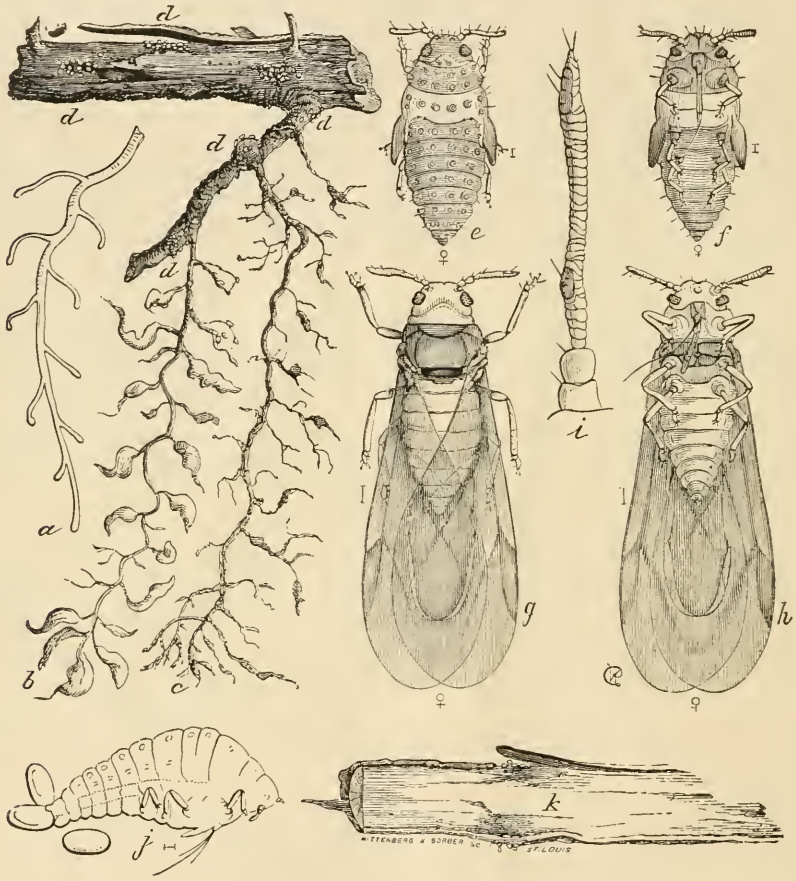


FIG. 46, SHOWING ROOT INHABITING LICE.

ing mothers like the first, and, like them, remain wingless. After several generations of these egg-bearing lice have been produced, a number of individuals, about the middle of summer, acquire wings. These are also females, and they issue from the ground, and, rising in the air, fly, or are carried with the wind, to neighboring vineyards, where they deposit eggs on the under side of the leaves among their downy hairs, beneath the loosened bark of the branches and trunk, or in crevices of the ground about the base of the vine. Occasionally, individual root lice abandon their underground habits and form galls on the leaves.

In figure 46 we have the root-inhabiting type illustrated, where *a* shows a healthy root, *b* one on which the lice are working, *c* a root which is decaying and has been deserted by them; *d*, *d*, *d*, indicate how the lice are found on the larger roots; *e* represents the female pupa seen from above, *f* the same from below, *g* winged female, dorsal view, *i* the antennæ of the winged insect, and *j* the wingless female laying eggs on the roots; *k* indicates how the punctures of the lice cause the larger roots to rot. Most of these figures are highly magnified, the short lines or dots at the side showing the natural size."

There is another, but less destructive, form which produces galls on the leaves, and which are often seen, especially upon the Clinton grape and other varieties of that type; but, on the whole, the Phylloxera is far less to be dreaded on this continent, of which it is probably a native, than in Europe, where, since its introduction, it has threatened the wholesale destruction of the French vineyards, which are the chief dependence of the French horticulturist. Our American varieties of grapes seem to be much better able to resist its ravages than do the less vigorous European varieties.

WARING'S SEEDLING GOOSEBERRY.

I send you a sample of a seedling gooseberry which I raised and have grown for several years. The bush is an upright and strong grower, heavy cropper, very healthy, and has not shown any signs of mildew. It is also a very early variety, ripe berries being picked on the 12th of this month. It is also a pleasure to pick the fruit from this variety; it is almost entirely free from thorns, one can pick the berries without getting a scratch.

I have had a call from two gentlemen in the nursery business and several others interested in fruit growing, and one and all pronounce it to be a great acquisition to the gooseberry family; all are loud in their praises as to the quality and fine flavor of the berry, and being a gooseberry bush without thorns it is considered a very valuable variety.

I should esteem it a great favor if you will give me your opinion of the berries as to quality, flavor, etc. A description in the CANADIAN HORTICULTURIST might be interesting to fruit growers, and to our brother members of the Fruit Growers' Association of Ontario, and readers of the C. H. *43 Portland St., Galt, Ont.*

This gooseberry bears out all that is said of it by Mr. Waring, so far as we can judge from samples. The form is oval, and larger than Downing; skin smooth, thin, transparent, almost white; flesh tender, sweet and excellent quality.

SUMMER PRUNING OF THE GRAPE.

SIR,—Would you recommend pruning grapes at this season, or after they have set? Would it injure the fruit to cut them back, say within two or three leaves or eyes of the fruit? They have grown so long it is well nigh impossible to tie them up, without cramping the growth of the bushes. WM. MCM., *Niagara.*

Summer pruning of the grape is very little done by Canadian fruit growers, not because there is no benefit to be derived from it, but because few of them have the leisure to attend to it in a proper manner. The consequence is that the vineyards become a perfect mat of vines before the time of the grape harvest.

In spring pruning, the vines are usually cut back to within two eyes of the base. These two eyes will produce shoots of which, after they have made a little growth, the weaker should be rubbed off and the stronger one trained up. Now all that remains to complete what is called "summer pruning" is to first pinch off any side shoots which appear during the summer, and any suckers that come up from the roots; and, in the month of September, to pinch the end of the upright shoot for the purpose of maturing and strengthening it.

DISEASED PEACH LEAVES.

SIR,—I enclose you a peach leaf affected by some disease, and I would be obliged to you if you could give me any information concerning it. I think it is caused by an aphis which makes its appearance in midsummer and continues until the autumn, until every leaf is more or less riddled, and I am satisfied that it riddles the tree and exhausts the sap quite as much as the slug does the pear. The fly, when fully matured, has large eyes and nippers and is a very lively and voracious creature.

R. HOBBS, *Auckland, New Zealand.*

Reply by Prof. Fletcher, of Ottawa.

The peach leaves from New Zealand, sent me by the editor of the CANADIAN HORTICULTURIST, I referred to Prof. Byron D. Halstead, of New Brunswick N. Y., for his opinion on the species of rust on the leaves. He answers that it is the peach rust (*puccinia pruni opinosæ, pers*) in its uredo form. The same is abundant in California. The correspondent spoke of the leaves being riddled, but the leaves sent show no such condition, merely the rust clusters and some small dipterous larvæ. I should very much like to see the species referred to with large eyes and nippers; a few specimens would come easily by mail.

With regard to the dipterous larvæ referred to, I notice, in the February number of the *Agricultural Gazette* of New South Wales just received, a most interesting article on "Insect Larvæ (Cecidomyia)" eating rust on wheat and flax, to which is added at the end a note to the effect that the authors had seen larvæ on plum trees feeding on spores of *puccinia pruni.* The letter, coming in just as I had read this article, interests me very much indeed.

SMALL SIZED TREES.

SIR,—I received the trees sent out by the Association all right, but the Sari Synap was, poor thing, not fit to be called a tree. Its roots were not thicker than a horse hair, and not more than an inch and a half long. You ought to send out some first-class Russian apple trees of such a size as are sold by nurseries.

J. PEGG, *Kolapore.*

Occasionally we receive complaints from our subscribers concerning the trees and plants sent out by the Association, that they are either too small or they have not come to hand in good order.

Regarding the first complaint, it needs to be thoroughly understood by all

that nothing but small sized trees and plants can be sent out by mail. Some time ago the Association attempted the plan of distributing large sized trees, sending them to one person in a town and trusting to him to distribute to the others, but this work was not satisfactory, because frequently they were left in this person's garden for a long time without being delivered. We are willing in the future to send large sized trees, where any special agreement is made for their distribution on arrival; otherwise, sending small trees by mail is, on the whole, more satisfactory. The Sari Synap could not be furnished in large sized trees last spring, for it was only one year since the scions had been received from Russia, and nothing larger than yearling trees could possibly be obtained. We shall do our best to give satisfaction to all, and, where failure occurs, to make up at the succeeding distribution.

BARK LICE.

SIR,—Several of my neighbors' orchards are dying with bark lice; the trees are utterly covered with them, even to the tips of the twigs, and they are now spreading over the new growth. What can be done to prevent the spread of this pest?

JOHN FOTHERGILL, *Marnock.*

The best insecticides for the destruction of the bark louse have been frequently given in the columns of this journal. One of the simplest is a strong mixture of washing soda and water applied to the branches with an old broom, and if a sufficient amount of soft soap is added to bring the mixture to the consistency of paint, it will be still more effective. Kerosene emulsion is another effective remedy for the bark louse; but any of these applications will be less useful if applied at any other season than in the month of June, when the young lice are young and tender, and, therefore, easily destroyed. In the leisure of winter time the trees effected should be well scraped, thus removing a large number of the lice and a considerable portion of the scaly bark, in which they hide. By this means the tree will be prepared for the applications of the remedy when the proper time comes.

BLACK KNOT,

SIR,—I notice that Prof. Farlow, of Harvard University, has successfully used red oxide of iron with linseed oil as a paint to destroy black knot on plum trees. Would not a liberal dressing of copperas around our plum and cherry trees fortify them to some extent against the attack of fungus by absorbing some of the iron, or would plum and cherry trees not absorb it?

Again, would not iron sprayed on the trees in the early spring, before the foliage appears, be destructive to the fungus spores which might be blown upon them?

SUBSCRIBER.

The plum and cherry trees would not be likely to absorb a sufficient quantity of iron to prevent the spores of the black knot from growing upon them, for

trees will not take up more than a certain percentage of this element from the soil, even though it be very abundant there; but spraying the trees with sulphate of iron in early spring has not only been highly recommended, but has proved itself to be a valuable remedy for black knot. This substance is used in the proportion of one pound to twenty-five gallons of water, and, although too strong to be applied when the foliage has developed, it can be safely applied while the trees are yet in bud, and will serve to destroy, not only a large number of the spores of the black knot, but also of the scab, mildew, rust and other fungi.

LICE ON APPLE TREES.

SIR,—My young apple trees are covered with young insects or lice, or whatever they may be called. They seem larger than lice and are quite green. They cluster by the new growth, and neither Paris green nor kerosene emulsion seem to do any good. The trees are otherwise very healthy.

E. B. E., *Peterboro', Ont.*

The insects which are troubling the trees referred to by our correspondent are without doubt the apple tree aphides or plant lice, which, during a dry season, are sometimes so abundant as to seriously interfere with the vigor of the trees by sucking out all the juices of the young growth. Paris green has no effect upon them whatever, as they do not eat the substance of the leaf, but merely suck from the interior. The most effective remedy is kerosene emulsion, and if the application made by our correspondent was not effective, it must have been because the proportion of kerosene was not great enough. A formula which would be sure to be effective in the most troublesome cases is the following: "Soap, one-half pound, dissolved in one gallon of water, heated to a boiling point, when two gallons of kerosene are added and the whole mixture stirred rapidly until an emulsion is formed." This will keep for some length of time, and when required for use should be diluted in the propartion of one part to nine parts water. This emulsion is found to be very convenient for many purposes, as for instance, brushing the wood work of the hennery, cleansing animals affected with lice, and for the destruction of the squash bug.

SUMMER PRUNING CURRANT BUSHES.

SIR,—My currant bushes have thrown up wood very high. Should they be cut back, and when?

WM. MCM. *Niagara.*

The principal work of pruning the currant should be done in the autumn or in the early spring, but, in order to produce large sized berries, some gardeners pinch off the ends of the stronger growing shoots, about the middle of June, with the object of causing the plant to expend its energies in developing large sized berries.

PEAR LEAF GALL MITE.

SIR,—I enclose to your address some diseased pear leaves, and a letter from Mr. James Fletcher, Dominion Entomologist. The trouble on these pear trees we have noticed for a number of years, and as it did not directly feed upon the fruit, we have not as yet tried to eradicate it, but now it has become so general in pear orchards in this vicinity, there is scarcely a pear tree whose leaves are not, more or less, seriously injured. I have also received some pear leaves similarly affected from Mr. McFall, of Boulton, which shows that this pest is widespread.

J. K. MICHAEL, *Waterford.*

Mr. Fletcher's reply

The pear leaves which you enclose have been injured by an insect which is a very minute mite. The corky blotches on the leaves are the galls of mites belonging to the Phytoptus. Under a glass these appear as shown here, much enlarged. Each gall is a swelling with a tiny hole in the top through which the young mites leave the gall, and attack the leaf in other places. These pass the winter beneath the scales of the buds.

FIG. 47.—ADULT MITE, MUCH ENLARGED.

So far, I am sorry to say, there is no easy remedy known. Prof. Comstock, of Cornell University, suggests picking the first leaves which show the characteristic spots in the spring, and pruning off the young wood where the mites usually spend the winter. I am of the opinion that spraying the leaves in early spring just before the buds open, and again just after, with kerosene emulsion, would destroy many of the mites. To every ten gallons of kerosene emulsion, after dilution, two ounces of flowers of sulphur might be added.

DISEASED FUSCHIA LEAVES.

SIR,—I send you some diseased leaves cut from my Storm King fuschia. Can you give me the cause and remedy? This disease does not seem to hinder the growth of the plant, or blooming, but causes a very shabby appearance.

ELIZABETH TRIGGE, *Cookshire, Que.*

Reply by Prof. Fletcher, Entomologist, Exper. Farm, Ottawa.

The insects affecting these leaves are a small scale-like larvæ of an Aleyrodes, which belongs to the Homoptera, or plant bugs, and comes between the Coccidæ, or Scale Insect, and Aphides, or Plant Lice. If your subscriber examines closely she will find also in the leaves some lovely little white lice with four wings, into which the scale-like insects on the leaves soon would have changed.

If the plant is growing out of doors, I would suggest a very weak kerosene emulsion; if a pot plant indoors, I think a couple of good washings with soap suds, in which a little tobacco has been steeped, would answer.

SUMMER PRUNING OF ROSES.

SIR,—Some of our roses have thrown up very high shoots. Should they be cut back, and when?

WM. McM., *Niagara.*

Mr. Ellwanger, in his book on "The Rose," advises the pruning of roses early in the spring, emphasizing the importance of attending to it while the plants are dormant and before the sap has pushed towards the upper buds. The chief objects of this pruning are for the formation of symmetrical plants and to promote the formation of bloom buds. He advises a severe pruning of delicate growers, and a moderate pruning of vigorous growers. Besides this pruning in March, he says that summer pruning is desirable with many varieties of hybrid perpetuals, as soon as the June blossoming is over, in order to induce the formation of flower buds later in the season.

SUMMER PRUNING.

SIR,—Should I do any summer pruning of young vines, or should I leave them alone the first year until fall?

E. B. E., *Peterboro'.*

Young grape vines should by all means receive attention during the first year of their growth. The proper way is to allow only one shoot to grow up from the root the first season; all others should be rubbed off. This one shoot should be trained up to a stake, that it may acquire an upright habit of growth.

THE WHITE SPOTTED RICHARDIA.

SIR,—The Spotted Calla received this spring is growing finely, but there are seven small shoots, also, coming up from the bulb. Should these be permitted to grow now, and detached later on? or ought they to be broken down at once so as not to weaken the larger one?

A. SMALLFIELD, *Renfrew.*

These suckers may be removed at any time when repotting the plants, and used for propagation, which is very easy. It will not be wise to disturb the plants at this season of their removal. The term Calla, so commonly given this plant, properly belongs to a European marsh plant, Calla palstris.

A FRUIT EVAPORATOR.

SIR,—How and where might I get a fruit evaporator?

E. B. E.

We have received no catalogues of any Canadian manufacturer of evaporators, but we have received several from the States. One of these is from the American Manufacturing Co., Waynesboro', Penn., and another from the Zimmerman Machine Co., Cincinnati, Ohio. We would advise our correspondent to write to one of these firms.

PEACH TREES WITH APPLE TREES.

SIR,—Would you recommend peach trees to be planted alternately with apple trees, and to be cut out after ten or twelve years' growth ?

S. DOBIE, *Manchester, England.*

This is the usual custom in Ontario, where peaches succeed and the soil is suitable. The apple trees are planted thirty or forty feet apart each way, and the peach trees between in the rows, and one additional row of peach trees between the apple tree rows. In this way we get, say, fifty apple trees and one hundred and fifty peach trees to an acre. The peach trees die out in the course of fifteen years, more or less, leaving the ground entirely to the apple orchard. Of course peach trees must have light, well-drained soil. They do not grow well on clay land.

IMPERIAL MEASURE.

SIR,—I have read a good deal in your journal regarding the spraying of fruit trees, and the proportions in which the poisons should be mixed. When giving a formula, do you understand that the imperial, or some other measure, should be used? Would you please enlighten us ?

W. J. RICHARDSON, *Oshawa, Ont.*

We take it for granted that the authorized measure is the one which would be understood by all our readers as the one to be used.

AMBER CAP RASPBERRY.

SIR,—I mail you to day a bunch of Amber Color Cap Berry, a seedling ; let me know what you think of it. The bush is very hardy and a very large yielder ; taste of berry I think, far ahead of any Black Cap. JACOB SEGMILLER, *Walkerton.*

This appears to be an excellent bearer and of fair sized berries, but in our opinion the color would not take in the market as well as either red, black, or yellow.

BUDDING YOUNG TREES.

These questions by Mr. John Fothergill, of Marnoch, are answered by Mr. John E. Morris, of Fonthill.

1. Can apples, pears, cherries, plums and peaches all be successfully budded ? Yes.

2. What kind of stocks can they be respectively budded upon other than their own ? None, excepting Pears for dwarf, which are budded on Angiers Quiver.

3. What time should each of the above-named kinds be budded ? Apples, pears or plums, last of July or fore part of August ; cherries, middle of August ; peaches, latter part of August.

Open Letters.

THE FRUIT GARDEN AT NIAGARA.

SIR,—You will be pleased to know that the peach crop here will be fair, though not large. Plums and pears are very heavy and pretty free from curculio, while grapes never looked more promising.

The grape beetle attacked them when coming into leaf, destroying some vines in this vicinity. We destroyed the most of them, but those which escaped deposited their eggs on the leaves, which soon developed into small brown worms, and these were most destructive. I at once applied the Bordeaux mixture, which has proved a good remedy both for this and for the thrip, which has also been troublesome. I have applied the mixture to my apples, and, I think, with success. I am very much pleased with your annual report, so handsomely bound and set up.

W. McM., *The Rectory, Niagara.*

APPLE PROSPECTS IN ENGLAND.

The season for Tasmanian apples being just over, I post you a few of our catalogues which will give you a fair idea how prices have ranged. The cases contain a bushel or a trifle over. On looking at prices the cost must be considered, and this you will understand from the fact that the freight alone is 4*s.* 6*d.* per case. They arrive here from Hobart, Tasmania, in the mail steamers, stowed in cool chambers. The apple prospects here, as far as indications go at present, are most favorable for an abundant crop, and as far as this market is concerned, means, we shall not require to import any till well on in the month of October or November.

J. B. THOMAS.

Covent Garden Market, London, Eng.

THE APPLE PROSPECTS IN BRITAIN.

SIR,—In our desire to keep you "*au courant*" as to the apple trade and its prospects we now address you. Since we last had this pleasure the Tasmanian apple season has finished entirely in accordance with our earlier advice to shippers. 140,000 cases have been shipped this season, embodying a period of about ten weeks. The crop in Tasmania being very backward, the last consignments reached here the beginning of this month. As a natural consequence soft fruit being on the market, apples suffered in price to a considerable extent; the bulk of sales per Port Victor averaging 7/- to 9/- per case.

Tasmanian fruit is of very fine quality, but it has not the keeping properties of Canadian fruit. This fruit is never likely to seriously interfere with your growth as the arrivals do not commence until yours are practically over. A serious matter with the owners of this fruit, is the fact that a case containing 36 to 40 pounds of fruit cannot be placed on the market under a cost of at least 6/- to 6/6, without any allowance for the cost of the fruit. The Tasmanian growers have combined to ship next season 170,000 to 300,000 cases. Their representative writes us they are well pleased with our advice and sales. Next season he will be here to superintend the sales, which is satisfactory.

The crop both here and on the Continent, namely France, Belgium and Germany, is now decided unless storms should arise. In France the crop is very partial. Bordeaux, one of the principal districts advise us that the crop is bad; in other countries from which we get autumn and winter supplies, promise a large supply. The quality of this fruit is poor in comparison with yours. There will certainly be a good demand for winter stock but shippers will have to face the certainty that fruit will have to be sold at moderate prices. It will have to be handled carefully, selected and tightly packed. Shippers should establish a particular brand as their own for their best fruit; if by any chance they are compelled to pack any they have their doubts about, they should brand them differently.

We shall keep you well posted as the season advances, and in the meantime.

Yours faithfully,

GARCIA, JACOBS & CO.

GORDON.*

BEAUTIFUL boy, with golden hair,
Tell me what thou see'st there;
Gazing on the western skies
With those far-off earnest eyes.

Just such an earnest, wistful smile
Had sainted Gordon of the Nile!—
Fond wishes crave a nobler field
Of fame than what a sword can yield.

God make you worthy of your sire,
To wield the pen with patriot fire
I see in that broad, massive brow
The genius that fills it now.

I see in your angelic face
Early tokens of God's grace,
And trust 'tis God's eternal plan
To make of you a noble man!

Long may his mother live to see
How divinely sweet is he;
A golden radiance covers her
As she clasps her Gordon Lorimer!

GRANDMA GOWAN.

*Three year old son of the editor.

Our Markets.

CANADIAN FRUIT GROWERS' MARKET BULLETIN.

NEW YORK CITY.

The week opens with clear cool weather, business generally in produce lines rules quiet, and prices of fruit (apples especially) rule low. Currants in light supply and selling 8c. to 10c. per qt., huckleberries 9c. to 11c., blackberries 6c. to 10c., raspberries 3c. to 5c. per cup, Bell pears $2 to $2.75 per bbl., peaches 25c. to $1.50 per basket, apples 75c. to $1.50 per bbl., fancy do. $1.75 to $2, potatoes $1.75 to $2 ; onions $3, cabbage $3 to $5 per 100, tomatoes 75c. a crate, watermelons in heavy supply and selling at 15c. to 20c.

G. S. PALMER, 166 Read St.

BUFFALO.

Below, we give you a report of our market, as near as possible from actual sales : Potatoes $1.50 to $1.75 per. bbl ; apples, best goods, $2.50 to $3.00 per bbl. ; inferior, $1.75 to $2.25 ; peaches, 75c. to $1.00 per basket, per crate, $1.50 ; black raspberries, 10c. to 12cts., reds 10c. to 11cts. ; huckleberries, 7c. to 9cts. per lb. When plums are ready for shipment let me know ; can handle a car load quick. Ship Red Astrachan apples if good, sound stock will bring top price.

MONTREAL.

The fruit trade last month has been very brisk in this city. The receipts of Southern tomatoes, apples, pears and melons being unusually heavy this summer.

The prices ruling at to-day's market, are : Canadian raspberries, 8½ to 9cts. per quart ; Canadian raspberries, 65 to 75cts. per pail ; Canadian cherries, $1.00 to $1.25 per basket ; apples, N.Y. State Astrachans, $3 to $3.50 per bbl. ; apples, Southern, $3 to $3.25 per bbl. ; apples, Canadian, 40c. to 50cts. per basket ; peaches, Canadian, $1 to $1.75 per basket ; California plums, $2.25 to $2.50 per box ; California peaches, $2.25 to $2.50 per box ; California pears, $3 to $3.25 per box ; California apricots, $3 to $3.25 per box ; Southern tomatoes 30c. to 50cts. per box. We hear from almost every part of the country a report of good fruit crops. We judge that at least peaches, plums, and summer and fall apples will be abundant in supply, and very moderate in price. The crop of winter apples reports are conflicting, but, on the whole, we expect to see a fair crop. We strongly advise all shippers not to send to this market *inferior* harvest and other apples, nor apples that have been packed a few days. The money is in fresh-packed, fair-sized, good fruit. The local crops around Montreal has very largely increased during the past five years, and to a great extent supplies this market with very fine apples.

VIPOND, MCBRIDE & Co.

TORONTO.

Raspberries are somewhat scarcer to-day, and prices are up a little. An error in the typographical changing of figures got the quotations of foreign peaches opposite native peaches while the figures for California peaches were left unaltered, thus giving a mistaken height in price. Those peaches selling at 75c. per basket are very poor stuff, badly infected with yellows, while even at $1.25 the sample is not above extra choice. The general price for ordinary grade peaches is 90c. to $1 per basket. Apples, native, per basket, 40c. to 45c. ; apricots, Cal., per 4 basket crate, $2 to $2.25 ; bananas, per bunch, $1.50 to $2 ; beans, per basket, 20c. to 25c. ; blueberries per basket, 90c. to $1 ; cherries, per basket, 65c. to 75c. ; cucumbers, per dozen, 40c. to 45c. ; currants, black, per basket, $1.50 to $1.60 ; currants, red, per basket, $1.10 to $1.25 ; gooseberries per basket, 80c. to $1 ; lemons, per box, $5.50 to $6 ; oranges, Val., per case, $6 to $8 ; oranges, Mess., per ½ box $2.50 to $2.75 ; peaches, Cal., per box (225), $1.85 to $2 ; peaches, native, per basket, 75c. to $1.25 ; pears, Cal., Bart., per box, $4 to $4.50 ; pears, hog, per basket, 50c. to 60c. ; plums, Cal., per 4 basket crate, $3.50 $3.75 ; raspberries, red, per box, 8c. to 11c. ; raspberries, black, per box, 7c. to 10c. ; tomatoes, per small basket, 40c. to 50c. ; tomatoes, per large basket, 80c. to 90c. ; tomatoes, per crate, 75c. to $1.50 ; watermelons, apiece, 20c. to 25c.

GENERAL MARKET REPORT,

Furnished by the N. D. F. G. Stock Company, 31st July, 1891.

	Ottawa.	Montre'l	Toronto.	London.	Guelph.	Kingst'n
	$ c. $ c.	$ c. $ c.	$ c. $ c.	$ c. $ c.	$ c. $ c.	$ c. $ c.
Cherries, sweet, per bskt.	1.10-1.25	.....	.90-1.00	.80-1.00	.....	90
Raspberries, red, per box	11	10	.07- .08	.07- .08	8	.....
Do. black, per box	.....	.....	.07- .08	.08- .09	6	.....
Cherries, sour, per 12 qt. bskt.	.60- .75	.....	.....	.....	.....	.....
Currants, red	.....	.....	1.00-1.25	.80- .90	.....	.....
Do. black, per 12 qt. bskt	.....	.....	1.50-1.60	1.10-1.30	.....	.....
Gooseberries	.....	.....	.90-1.25	.60-1.00	.....	.....
Peaches, Early, per bskt.	75	.75-1.25	.70-1.00	.90-1.25	.....	1 00-1.20
Pears	.....	.....	.60- .75	.60- .75	.....	.....
Apples, Red Astrachan, 12 qt. bkt.	.60- .75	.60- .75	.....	.40- .50	.....	.60- .70
Do. Early Harvest	.....	.....	.30- .40	.25- .30	.....	.....

NOTES.—*Ottawa*—Apples by express will not pay. *Brockville*—Good fruit wanted. Market full of trash.

Our Book Table.

BOOKS AND REPORTS.

KANSAS STATE HORTICULTURAL SOCIETY, 1879-1890. G. C. Brackett, Secretary, Lawrence, Kan.

A well prepared and well executed book of 176 pages. It contains reports of fruit cultivation in the various parts of the State, together with valuable papers by prominent fruit growers, and some account of local societies.

PROVINCIAL AND INDUSTRIAL EXHIBITION, Montreal, September 17th to the 25th, 1891. We have received a circular from S. E. Stevenson, Manager and Secretary, concerning this proposed exhibition, which promises to be first-class in every particular.

LINDENIA.—This valuable work comes regularly to this office in monthly parts and deserves more than passing notice. The plates are, every one of them, gems of art, and must be very costly. There are four of these in each number, folio size and printed on heavy card board. Each plate represents, in its natural size and color, a single orchid, and a complete monograph of the same follows. Any one interested in orchids, who can afford the luxury, should write to Lucien Linden, 100, rue Belliard, Brussels, Belgium, for terms.

BULLETIN 11; CENTRAL EXPERIMENTAL FARM, OTTAWA, contains recommendations for the prevention of damage by some of the common insects of the farm, the orchard and the garden. It has been carefully prepared by Mr. Jas. Fletcher, the station entomologist, and may be had free on application.

REPORT OF THE UNITED STATES POMOLOGIST for 1890, by H. E. Van Deman, Washington, D. C. This publication is very interesting to all practical fruit growers. It contains colored plates of the Switzer apple, the Banquet strawberry, the Brilliant grape, and also of some tropical fruits, concerning all of which some reliable information is given.

NEW YORK AGRICULTURAL EXPERIMENT STATION. Ninth Annual Report. Contains a report of fruits tested by the horticulturists there. Cloth, pp. 448.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, for the year 1890. Part II. Robt. Manning, Secretary.

THIRTY-THIRD ANNUAL REPORT of the State Horticultural Society of Missouri, 1890. L. A. Goodman, Westport, Mo., Secretary. Paper, pp. 582.

BULLETIN 13, IOWA AGRICULTURAL EXPERIMENT STATION. Contains interesting matter on treatment of fungus diseases.

LIST OF AGENCIES NOW OPEN
OF THE
Niagara District Fruit Growers' Stock Co., Ltd.

Toronto	Agency.....	J. W. Brownlow, Agent.
Ottawa	"	S. E. della Ronde, "
Montreal	"	Joseph Brown, "
Brockville	"	J. L Upham, "
Kingston	"	B. Hare, "
London	"	R. B. Walker, "
Guelph	"	George Dudgeon, "
Winnipeg	"	Rublee, Riddell & Co. "

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E. J. WOLVERTON, *President and Manager.* J. W. G. NELLES, *Secretary.*

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REFERENCES—Dominion Bank, Toronto, and Imperial Bank, St. Catharines.
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The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

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THE

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PEWAUKEE APPLE.

THIS apple seems to possess some very desirable qualities, as a winter export variety. It is large, of good color and of excellent quality for cooking, while the tree itself is hardy and productive. The apple originated at Pewaukee, Mich., and is a seedling of the Duchess of Oldenburg, which circumstance alone would lead us to expect to find it possessed of considerable merit. It appears to be of sufficient hardiness for most parts of Ontario and Quebec, where apples are raised to any extent; and some growers who have it in their orchards have spoken very highly of it at meetings of our Association.

Thus Mr. P. C. Dempsey, of Trenton, Ont., says of it in our report for 1889, page 9: "The Pewaukee is as pretty as the King with us. It will produce two barrels to one of the King and fetch just as much. I do not think I could recommend any other apple more highly than the Pewaukee."

An Ohio fruit grower writes in the *Prairie Farmer* in the following terms concerning it: "This valuable variety has not received the attention it really deserves. The Pewaukee apple trees in my orchard were one year old from graft, when planted in 1878, and at no time have they shown any signs of injury from the winters, while such varieties as Northern Spy, Maiden's Blush, Rambo, Early Harvest, Buckingham and Rawle's Janet were entirely killed. No tree in the orchard compares with it for beauty of form and productiveness. From the

one year old trees, set out in spring of 1878, I have picked five bushels to the tree of the finest specimens. I know of no other variety to compare with it for a mid-winter market apple."

That the Pewaukee is adapted to the more favored apple growing regions of the Province of Quebec is proved by the testimony of Mr. Jack, of Chateauguay Basin, Que., who says: (*Vide* Rep. Mon. Hort. Soc., 1889, p. 105), "The Pewaukee is a favorite of mine for a winter apple. I have been growing it for ten years and find that the apples are of good size and highly colored. What we want is a good winter apple that will be profitable and of the best quality, and these characteristics I find in the Pewaukee."

Mr. Honey, of the same province, says: "I think the Pewaukee is about the finest winter variety we have. It bears pretty much every year, and the apples, so far, have been very fine. As a winter variety, I do not know of any better than the Pewaukee.

The question of hardiness is a very important one to some of our readers, and, in this particular, while the Pewaukee has considerable merit, it is yet not hardy enough for what is termed the "cold north." In the county reports, published in our report for 1884, it received full marks for hardiness in the county of Huron. According to Mr. Glendinning, of Manilla, no apple shows greater promise of hardiness in the south riding of Ontario county: but in the northern riding of that county our report classes it as tender, and according to Mr. A. A. Wright, it is not hardy enough for the county of Renfrew, except in the more favored localities. The late Chas. Gibb had it under test at Abbotsford, Que., and he said (Mon. Hort. Soc. rep., '89, p. 103): "I planted, twelve years ago, eighteen trees of the Pewaukee. It has not proved perfectly satisfactory with me; some trees I am going to lose and one or two I have lost. Their bearing has not been as satisfactory as I would have liked—but must say I got some very fine fruit and sent three barrels to England this year, which were very fine and arrived in good condition, and were thought highly of."

The following is a description of the Pewaukee apple: Fruit, medium to large, roundish, oblate; skin, bright yellow, striped and splashed with dark red; flesh white, tender, juicy, sub-acid. Tree vigorous; January to May.

HOW TO TELL A RIPE WATER MELON.—It is quite an art to select a choice melon without cutting a small hole through its fat green sides, but it can be done, by the feeling and general appearance. The dark green of the melon should be the color of English ivy leaves; the yellowish spot underneath, caused by its contact with mother earth, should be tested with the pressure of the finger. The spot should have a springy resistance, and the indentation thus made should not be noticeable when the finger is removed. If it remains the melon is too ripe and likely to be watery. If no depression can be made, the melon is not ripe enough.—*N. Y. Herald.*

NOTES FROM MAPLEHURST.—II.

WE are often asked the question, *What is the best summer pear for profit?* We have just now, August 14th, several varieties ripening, as, for instance, Beurre Giffard, Chambers, Doyenne d'Été, Osband's Summer, Rostiezer, Summer Belle and Tyson; and judging from our present experience, we would be inclined to reply *Beurre Giffard.* While *Doyenne d'Été* heads the list for earliness, the Giffard is not more than a week later and so superior in size and quality, that it is well worth waiting for. *Chambers*, or Early Harvest, is a fine pear about as large as the Giffard, and, with us, on the dwarf, very productive. It comes from Maryland and has been highly recommended by the Kentucky Horticultural Society as the best and most profitable market pear of its season. Its rich, golden yellow color, with blushed cheek, would surely sell it quickly in any market, but the Giffard so surpasses it in quality, that we would certainly give it the first place. Walking with some friends along our "specimen row" the other day, we handed them first the Chambers and then the Beurre Giffard, and all at once chose the Giffard for eating, one lady remarking that it was "almost like candy." The *Osband's Summer* is rather small and very perishable, while the tree itself is very subject to blight. The *Rostiezer* is a pear of excellent quality, but its small size and dull, green color make it almost unsalable in the market; even the *Summer Belle* of most wretched quality but fair size, will sell more quickly in the market than the Rostiezer. Some growers highly commend the *Tyson* and certainly, for productiveness, vigor, and healthfulness of tree, it is one of the best; but the color of the fruit is poor, and, consequently, it is not very saleable, especially as it ripens near the season of the Bartlett.

Of blackberries, our experience this season is highly in favor of the *Kittatinny* for this section of country. The *Taylor*, *Snyder*, and *Agawam* are too small to be profitable where the Kittatinny will succeed. This latter has yielded us this year a wonderful crop, the result we think, not only of a favorable season, but of the liberal application of ashes and superphosphate. We are becoming more and more convinced that these are of exceeding great value in the apple orchard, and in the blackberry and raspberry plantations; for this is not the first instance where we have harvested an enormous crop of berries after a liberal treatment with these fertilizers, and the same may be said of our apple orchards.

The *Red Astrachan* apple has proved itself to be one of the most productive of early apples on our ground. A lot of one hundred trees, fifteen years planted, is estimated to have a crop this season of at least three hundred barrels, and this we count a large yield, when we consider that this is not the bearing year of nearly all the trees. Many of them are borne down to the ground with

their enormous load of fruit, and this, too, of fine size and beautiful color. Our custom is to gather this apple, just as it gets its full color and greatest beauty, going over the trees two or three times a week, just as one would gather peaches. They are brought to the fruit house, where they are emptied out on the packing tables and the fancy ones selected out for packing in baskets, and the balance of the stock put up in barrels. For a long time it has been the general opinion that there was no money in early apples, and certainly our home markets are easily over-stocked with summer and fall apples, for which there is no outlet, owing to their perishability. For fancy fruit, however, there is almost always a good sale, and although we find the prices this year are very low for Red Astrachans in our Canadian markets, yet, taking one year with another. they are as profitable, when properly handled, as winter varieties.

Our *Yellow Transparent* trees are beginning to yield a few specimens, and, while we are much pleased with their size and waxy whiteness, yet we fear that they will scarcely come into the market in time to avoid competition with the beautiful Red Astrachans, which are so captivating to the eye that, after they are once placed on the markets, no other apple is wanted by the purchasers.

GOOD PEARS.—It should not be forgotten that whether any one kind of pear is good or not depends as much on the treatment it receives from the grower as from its own efforts to be good. If a kind is inclined to bear large crops, the quality will be poor unless some of the great number be thinned out. Again, if a tree, which usually bears fruit of a good quality, gets a little sick, bringing on premature ripening, the fruit will be poor. Still again, those pears which ripen very soon after gathering are much improved by being taken from the tree before quite mature, while late ripening kinds like to stay on as long as possible. Some ripen better in a dark room, and others in full light. In nothing is skill more at home than in the proper ripening of pears.—J. F. M., in *Meehan's Monthly.*

NITRATE OF SODA.—No manure that I have ever seen used, not even cow manure, in which I have great faith, has produced such immediate effect in the growth, vigor and full color of foliage. Mr. J. J. Willis, writing in the *Gardeners' Chronicle*, maintains that it is a most valuable factor in the production of vegetable crops and fruits. He strongly recommends it for strawberries, celery, cabbages, onions, in fact, for all kitchen garden produce. But he recommends it to be used in conjunction with ordinary manures. He says: "It may be stated that nitrate of soda is not regarded as a substitute for other manures. Taking horticulture as we find it, we recommend nitrate of soda as the cheapest and best form in which to apply nitrogen to plants. To those who are using ordinary stable manure we say, continue to use it, but use nitrate of soda in addition.—*W. Watson, in Garden and Forest.*

NOTES FROM MY STRAWBERRY BEDS.

THE severe frost of May and June, with the continued dry and hot weather, shortened the crop greatly; but, even had none of the blossoms been destroyed by frost, we would not expect anything like a full crop, with such a dry May and June.

The rain fall in May was not much, and less in June; which would tend to cut short the most promising crop.

The strawberry is largely water and requires a large amount to do its best. Aside from the drawbacks named, the season was favorable, prices were good, the demand exceeding the supply.

Loudon's No. 15.—Introduced by Matthew Crawford, this last spring; now named Governor Hoard. It is a variety, which I am of the opinion, will give satisfaction. I have fruited it four years and find no weak point in it. It is an abundant bearer of beautiful berries and a good shipper.

Bubach No. 5.—This is a grand berry and pleases most people because of its large size and productiveness. It has some faults, at the same time it is very popular, and is likely to continue so, especially for dry seasons.

Woolverton.—This variety is named after the genial editor of the HORTICULTURIST. Here is Mr. Crawford's description of it and of the two following varieties: This Woolverton produced nearly a full crop, and is in perfect health at this time, July. Those who have it may increase their stock without fear, as it combines all the desirable points in a high degree. It will be excellent to plant with pistillate sorts, as it remains in bloom about four weeks.

Martha.—Although this was greatly damaged, it produced nearly a full crop of firm, bright berries, of fair size and quality. It is a reliable market berry.

Saunders.—I have no reason to change my opinion of this variety. There is no fault about the plant, or its habits of growth and productiveness, Its first bloom being killed, it produced scarcely any ill-shaped berries, and is wonderfully attractive in the basket. The size and quality are satisfactory and it is very productive. This variety, in both plant and fruit, is one of decided character, and is sure to make its mark.

Beder Wood.—I have fruited this variety once; it is a very desirable one either for home use or market. It is healthy and vigorous, and an abundant bearer of large berries. The plant is faultless, it makes many runners, and these will be wanted as soon as its value is known.

Eureka.—(Originated with Mr. Townsend, Ohio.) I was the means of introducing this valuable variety to the strawberry-loving public. It still maintains its former reputation for fruitfulness, large size, and continuing long in bearing. It is pistillate variety.

Mrs. Cleveland.—Pistillate ; origin, same as the Eureka. It is a strong grower, berries large and plenty of them, and pretty (like the fair one for whom it is named), and promises to rival Bubach.

Enhance.—Perfect flower, valuable, originated by Mr. Young, Ohio. I have fruited it twice ; it is a strong grower, sending an unusual number of fruit stems from the same plant. Indications are that it will rank high among varieties grown for profit. The berry is large, some are mis-shapen, but of good color and quality.

Greenville.—Pistillate ; originator, E. M. Benchly, Ohio. I have fruited this once. Plant healthy and vigorous, dark green foliage, without blemish this trying season ; berries large and abundant, good form ; worthy of trial by fruit men generally.

Boynton.—Pistillate. The plant is a good grower and free from blight ; it is thought to be a cross between Crescent and Sharpless (a good parentage). The strong points claimed for it are :

Its earliness and long-continued season ; its large size maintained until the last picking ; its bright color and remarkable firmness ; its wonderful productiveness, surpassing all others in this respect. The largest yield ever taken from half an acre in Albany County, N. Y. was from half an acre of Boynton least season, without another kind within an eighth of a mile.

The following are too well known to need an introduction, such as Haverland, Warfield, Gandy, Logan, Crescent, Capt. Jack. Of the new introductions that seem promising, are Gillespie, Auburn, Princess, Bessie, Boynton, Westbrook, Lovett's Early.

Granton, Ont., 12th August, 1891. JOHN LITTLE.

THE HEADING OF CABBAGES.—It has recently been stated, as the result of an experiment in one of the United States stations, that if cabbages are slightly tilted over with the plough in the fall, it produces a tendency to make them have larger heads. We now learn, as an experiment by Prof. L. H. Bailey, of Cornell, that if the cabbages are planted shallow and earthed up, the percentage of large and heavy heads is much greater. As a matter of physiological principles these two experiments in different directions both accord. It goes to show that whatever favors the nutritive power, is against their disposition to produce hard heads. In Mr. Bailey's experiment the plants got the benefit of abundant moisture and nutrition, when headed up. When not headed, or when not earthed up, or slightly tilted, there is an obstruction to complete nutrition. Although these experiments seem of a somewhat unimportant character, they afford very interesting lessons to the study of plant life, from a practical point of view. We think the experiments ought to be repeated in view of these valuable and suggestive lessons.—*Meehan's Monthly.*

THE CURRANT.

A GOOD many articles appear, in our exchanges, regarding the cultivation of this fruit, and according to our experience, it is less planted as a staple crop in Ontario than its merits deserve. This state of affairs is probably due to the fact that, in early times, there were in cultivation only such small varieties as Red Dutch and White Grape, kinds which not only taxed the patience of the pickers, but which brought a very low price in our market. Then, too, this fruit was looked upon as unworthy of proper care or cultivation, and was only grown in corners of the fences, or in neglected rows along the garden paths, without proper pruning, or proper attention of any kind; besides this, many thought that there was no easy mode of routing the worm; and consequently the currant was the last fruit thought of as worthy of being planted by growers, and given high cultivation as a fruit crop for market.

But, after some years of experience, we have come to a different conclusion. Given a clay loam, well drained, well worked up and well enriched, planted with such varieties as Fay, Versailles or Cherry, all of which go in to market under the head of the latter variety, and bring a cent to two more a quart than the common kinds, and there is no doubt about the profits of currant culture.

The saw fly is easily kept down by hellebore; indeed, were the insect enemies of other varieties of fruit as easily destroyed as this one, the fruit grower might count himself a happy man.

Often there are portions of ground which cannot be put to good use, owing to the partial shade of an orchard; but, even in such unfavorable situations, the currant may often be grown with fair success.

The propagation of the currant is so exceedingly simple that we would not advise any of our readers, who wish to enter into cultivation of this fruit, to go to the expense of buying a quantity of plants from nurserymen. If any neighbor has a plantation of currants of the varieties wanted, he will be only too willing to part with a large quantity of cuttings, at the time of the yearling pruning; for these are worthless to him, unless he intends to use them for propagating. If no such opportunity as this offers itself, cuttings can be purchased from nurserymen at a very small cost. If planted in a sandy loam which is a little moist and not too shaded, there will be scarcely any failures. These, after one year's growth, will be ready for transplanting into the currant plantation, and in two years will begin fruit bearing. Five feet apart each way is a very good distance, because the cultivation will thereby, be rendered very simple; indeed, it will be no more trouble to care for such a plantation of currants, than it would be for an ordinary corn field, for horse cultivation can be in two directions, and there will be very little work left for the hoe.

The pruning of the currant is very important, and should be carefully attended to every year, both for the purpose of producing a constant supply of young growth, and also in order to remove all stalks which are affected by the borer; these latter should be carefully removed and burned, for this is the only way of routing this insidious foe. *The Garden* (English) gives the following directions for pruning the currant, which are very sensible: "The requirements of the Red currant are very different from those of the Black, as the latter bears best on the young wood, while the Red answers best if the young wood is cut off almost close to the main stem at pruning time in the autumn, leaving an inch in length, unless it is desirable to extend the number of branches, or the size of the tree. Young trees should be encouraged to form six or seven main branches, keeping the centre of the bush open all the time, like a basin, until the trees reach their full height, about four feet. The leading shoots should have only about one-third of their length cut off, and when the tree gets to its full height, they may be cut at the points as in the other parts, thus keeping the old main stems, which by this time will be full of buds their whole length, and bear very freely; it is well to encourage a young branch to grow up if any of the others show signs of weakness from old age, and thus gradually replace them. Summer pruning is also very beneficial to Red currants, cutting all young wood back to about three inches, as soon as the fruit is gathered, if it is not required for extending the tree, and reducing the pieces left to one inch in length, at the winter pruning." We do not follow this method precisely at Maplehurst, because the stems which are allowed to grow at too great a length, are almost certain to be attacked by the borer. Its ravages are best avoided by the constant renewal of the stems from the ground.

We have about three acres of currants, and count them one of our staple crops, because they go into the market when there is very little other fruit in competition, just after cherries and just before raspberries. The usual price is from three to four cents per pound, and, as they stand shipping well, are easily gathered, and easily marketed, this price pays the grower fairly well.

SPINACH.—Very few amateurs know how to raise a first-class grade of spinach, and yet nothing is easier. It should be sown about the time or a little before forest leaves color in fall. It grows then very rapidly under the temperate autumn weather. In the winter it requires a very light covering of straw, so light indeed that we can see the green leaves fairly well through the covering. The plant itself is hardy, no frost injures it. The use of the straw is chiefly to keep the frost from pulling it out of the ground and to keep the leaves from discoloring. No soil can well be too rich for this plant, the richer the soil the larger and more tender the leaves.—*Meehan's Monthly.*

EVAPORATING APPLES FOR PROFIT.

ALL fruit growers, and more especially of the apple, know that much of their fruit is unfit for market, either being wormy, specked, scabby, knotty or small. Now, all this fruit can be utilized by the evaporator, and placed upon the market at remunerative prices. It is not necessary to have a large establishment to accomplish this result. There are driers with their capacities ranging from one to two bushels of green apples per day, up to thousands.

The work can be done just as well and as cheaply on a ten-bushel machine as in any of the large factories, and my experience has been that they are the least expensive. Often it will pay to evaporate the whole crop. I have often realized more for culls than for the shipping fruit.

One hand can run a ten-bushel drier, with twenty-five cents worth of fuel, and make fifty pounds of white fruit per day, which, at ten cents per pound, about the average price, would net four dollars and seventy-five cents, making nearly fifty cents a bushel, including the day's work, and, at this year's prices, would be over seventy cents, and if the waste is dried, almost a dollar.

Again, one important point thus gained is culling out your shipping fruit, making it grade fancy, and thereby obtain the highest market price for it.

Market only the best, evaporate the rest. Thus you would avoid the breaking down the markets for the green fruit. This is always done by inferior stock being run on the market, and never by good choice fruit. We can, at nearly all times, see apples quoted on the market at 75 cents to $1.25 per barrel. These represent loss to the grower. All of this kind should never go on the market, but in the evaporator. The world is your market for evaporated fruit; you have nearly four barrels of apples in a fifty-pound box that can be shipped just as safely to Alaska, China or India, as to St. Louis, and you need be in no hurry to market it. Next spring is as good as this fall, and often better prices are obtained.

When properly packed, and with proper storage, it can be kept for years as fresh and sweet as when first prepared, except a little loss in color, but even this may be overcome by cold storage.

If prices are as low as they were two years ago, when it was worth only from four to six cents a pound, and the waste and chop less than one cent, it can safely be kept over until there is a shortage like the present, when fifteen cents can be obtained for the white fruit, and four to five cents for chop and waste. The chop is apples sliced just as they are without any paring or coring, and dried; in this the small and knotty apples that cannot be pared are used. The work is done quite rapidly with a machine made for the purpose; forty or fifty bushels can be sliced in an hour by two hands.

One bushel of apples will make ten pounds of chop, which is now worth four cents a pound.

The waste is the skins, cores and trimmings from white fruit, which needs no other preparation only to put it in the evaporator, dry it and pack it in sacks or barrels ready for shipment. It is used for making jellies, and usually brings about one-half cent more than the chop. Most of the chop is, I understand, shipped to Europe and there manufactured into fine wines and sent back to this country, and sold at from one to five dollars a bottle. The price is, therefore, greatly influenced and governed by the grape crop in the old country. Many thousands of tons are manufactured each year. Everything can be used, nothing wasted.

A delegate said:—"I think still more can be done than the gentleman says. I evaporated some 1,400 pounds of fruit, which sold for ten cents per pound. I made use of every part of the fruit, except the wormy part. Vinegar was made of the waste. I sold some ten or twelve barrels at twenty cents per gallon, $9.60 per barrel of forty-eight gallons.

"I picked out the choicest to ship and evaporated the culls and seconds, which would have damaged the whole lot if shipped together. The vinegar apples made nearly as much money as any. I netted $85, using a cider mill that cost $15. We use a pear corer and slicer to prepare the apples for drying. Wife and two little girls did the work, apples and wood being brought to the house for them.

"Some of the apples kept a year and a half, were as white and good as when first put up. No trouble to keep them five years. We used about a tablespoon of sulphur to a half bushel. When dry, we put the fruit right into flour barrels, and headed it up tight. Some kept eighteen months, are as nice and fresh as when first put up. They are better to cook than fresh fruit, as they don't require sugar, while fresh fruit does.

"We pack them hot, right from the trays. If they stand open, the miller will get into them. Turn them from the tray into the barrel, and keep them perfectly close. Just as soon as a barrel is full I headed them up."

—*J. B. Durand, before Missouri Hort. Soc.*

BRIGHT COLORS IN AUTUMN FOLIAGE.—Joseph Wharton long ago explained that when sap ceases to flow in the fall, and the natural growth of the tree ceases, oxidation in the leaves takes place. Under this oxidation the leaves change to red, or, with a slight change of the condition, it might be yellow or brown. This, however, is only the chemical explanation. Life, or as we would say, vital power, has to bear a part. If a branch is entirely cut off from the main plant no change of color occurs. On the other hand, if a branch is injured, though not entirely cut of from the tree, a change of color takes place, even if it be mid-summer. In other words, chemistry alone cannot account for the bright colors of autumn foliage; the mysterious power we call life has to work at the same time.—*Meehan's Monthly.*

THE MIDDLEMAN.

R. G. S. PALMER, of New York City, writes a very sensible article in the *Fruit World*, showing what a waste of time and money is often spent by the commission merchant in keeping agents at various points soliciting fruit consignments, or in doing this himself. He thinks the shipper should be left to his own judgment in this matter, and the merchant should attend only to his legitimate business. He farther adds :

The daily auctions that are being held at four or five different points, has become quite a serious feature in the produce market, as a demoralizing influence is frequently the result, for the reason, if only a limited quantity is forced on the market in its overstocked condition, the lower prices are quickly noised about, and the values of the supply in the whole market is depreciated. This easy and quick method of getting rid of a large amount of produce (at some price, even if not satisfactory to the owner), is becoming a temptation to the trade.

The tendency of human nature to speculate on new schemes will afford temporary encouragement to many of the new methods of marketing which are claiming advantages over the old and tried system of selling on consignment. But I am a firm believer in the law of the survival of the fittest, and that the commission merchant is as legitimate and important a factor as any in commercial lines, and to a great extent indispensable, as $100,000 worth of perishable products of this vast country must be daily disposed of. The markets are clogged, in fact, no time to seek out buyers, the fruit must go forward or perish. The commission merchant has slipped into this breach and saved the producer. He says, "send on your goods, my store will be open at 1 a.m. to receive them, my salesman will be on the dock at midnight to dispose of all arrivals, and you will have your reports of sales by wire at your breakfast table."

Yes, the commission merchant is a necessity, and he will not be driven to the wall. He is here to stay. But, gentlemen of the trade, let us as far as is possible and practical, meet the requirements of the shippers, and eliminate all objectionable features, and endeavor to build up a closer relationship by working direct with your shippers, and not through a third party.

To the grower or shipper let me urge you, after carefully selecting your merchant (and let it be one deserving your patronage), show your confidence in him by giving him your undivided shipments. He will appreciate your patronage and strive the harder to please you, and retain it. Do not be easily swayed by these rumors of extreme and fictitious prices, that are floating in the air, around the depots and wharves, at the opening of the shipping season. But stick to your man if he has a record, and at the close of the season you will not regret it.

APPLES RECOMMENDED FOR CULTIVATION IN ONTARIO.

REPORT OF THE COMMITTEE ON THE DISTRICT FRUIT LIST.

SECTION 1—APPLES.

To the Fruit Growers' Association of Ontario:

GENTLEMEN,—Your Committee, appointed to name the varieties of apples which may be most successfully and profitably grown in each of the Electoral Divisions of this Province, the number of such varieties not to exceed twelve in all, viz., three summer, four autumn and five winter, for any district, beg to report the following lists:

DISTRICT NO. 1.—Stormont, Dundas, Glengarry, Prescott and Cornwall.—W. S. TURNER, Cornwall, Director.

Summer.—Yellow Transparent, Duchess of Oldenburgh.

Autumn.—Alexander, Fameuse, Gudeon, St. Lawrence.

Winter.—LaRue Pewaukee, Golden Russett, Ben Davis, Talman Sweet.

DISTRICT NO. 2.—Lanark, Renfrew, City of Ottawa, Carlton and Russell.—JOHN CRAIG, Experimental Farm, Ottawa, Director.

Summer.—Yellow Transparent, Duchess of Oldenburgh.

Autumn.—Alexander, Montreal Peach, Wealthy and Haas.

Winter.—Pewaukee, Golden Russett, Scott's Winter, Talman Sweet and Edgar's Red Streak.

DISTRICT NO. 3.—Frontenac, City of Kingston, Leeds, Grenville and Brockville.—DAVID NICHOL, Cataraqui, Director.

Summer.—Yellow Transparent, Duchess of Oldenburgh, and Red Astrachan.

Autumn.—Alexander, Colvert, Wealthy and St. Lawrence.

Winter.—Golden Russett, Pewaukee, LaRue, Ben Davis and Red Canada.

DISTRICT NO. 4.—Hastings, Prince Edward, Lennox and Addington.—P. C. DEMPSEY, Trenton, Director.

Summer.—Yellow Transparent and Duchess of Oldenburgh.

Autumn.—Alexander, Trenton, Gravenstein and Wealthy.

Winter.—Ontario, Hubbardston's Nonsuch, Pewaukee, Ben Davis and Cranberry Pippin.

DISTRICT NO. 5.—Durham, Northumb erland, Peterboro', Victoria and Haliburton.—THOS. BEALL, Lindsay, Director.

Summer.—Yellow Transparent and Duchess of Oldenburgh.

Autumn.—Alexander, Colvert, St. Lawrence and Gravenstein.

Winter.—Ontario, Hubbardston's Nonsuch, Pewaukee, Ben Davis and Blenheim Pippin.

DISTRICT NO. 6.—York, Ontario, Peel, Cardwell and City of Toronto.—W. E. WELLINGTON, Toronto, Director.

Summer.—Yellow Transparent and Duchess of Oldenburgh.

Autumn.—Alexander, Gravenstein, Red Beitigheimer and Wealthy.

Winter.—Golden Russett, Pewaukee, Ontario, Ben Davis and Hubbardston's Nonsuch.

DISTRICT NO. 7.—Wellington, Waterloo, Wentworth, Halton, Dufferin and City of Hamilton.—M. PETTIT, Winona, Director.

Summer.—Yellow Transparent, Early Harvest and Duchess of Oldenburgh.

Autumn.—Gravenstein, Colvert and Wealthy.

Winter.—Golden Russett, Ontario, Blenheim Pippin, Baldwin and Cranberry Pippin.

DISTRICT NO. 8.—Lincoln, Welland, Haldimand and Monck.—A. M. SMITH, St. Catharines, Director.

Summer.—Duchess of Oldenburgh and Red Astrachan.

Autumn.—Gravenstein, Princess Louise and Wealthy.

Winter.—Blenheim Pippin, Ontario, Ribston Pippin, Golden Russett and Cranberry Pippin.

DISTRICT NO. 9.—Elgin, Brant, Oxford and Norfolk.—J. K. MCMICHAEL, Waterford, Director.

Summer.—Duchess of Oldenburgh and Early Harvest.

Autumn.—Gravenstein, Twenty Ounce and Fall Pippin.

Winter.—Blenheim Pippin, Ontario, Baldwin, R. I. Greening and Golden Russett.

DISTRICT NO. 10.—Huron, Bruce and Grey.—A. MCD. ALLAN, Goderich, Director.

Summer.—Yellow Transparent and Duchess of Oldenburgh.

Autumn.—Gravenstein, Wealthy and Colvert.

Winter.—Pewaukee, Ontario, Baldwin, Hubbardston's Nonsuch and Cranberry Pippin.

DISTRICT NO. 11.—Middlesex, Perth and City of London.—T. H. RACE, Mitchell, Director.

Summer.—Duchess of Oldenburgh and Yellow Transparent.

Autumn.—Gravenstein, Colvert, Alexander and Fall Pippin.

Winter.—Golden Russett, Ribston Pippin, Ontario, Hubbardston's Nonsuch and Cranberry Pippin.

DISTRICT NO. 12.—Essex, Kent and Lambton.—N. J. CLINTON, Windsor, Director.

Summer.—Yellow Transparent and Duchess of Oldenburgh.

Autumn.—Gravenstein, Chenango Strawberry, Wealthy and Lowell.

Winter.—Ontario, Blenheim Pippin, Baldwin, R. I. Greening and Golden Russett.

DISTRICT NO. 13.—Algoma, Simcoe, Muskoka and Parry Sound.—G. C. CASTON, Craighurst, Director.

Summer.—Duchess of Oldenburgh and Yellow Transparent.

Autumn.—Alexander, Colvert, Red Beitigheimer and St. Lawrence.

Winter.—Pewaukee, Golden Russett, Scott's Winter, LaRue and Ben Davis.

In compiling the foregoing Fruit Lists we have consulted the Directors as well as the leading fruit growers throughout the several Districts. We have also tried to frame the lists so as to advise the planting of such varieties as bear the highest general points for each district for hardiness, growth, bearing, shipping quality of fruit and commercial values, both in local and foreign markets. In point of season, we have drawn a line for summer apples up to September 1st; autumn to December 1st; and after that date, winter; upon the understood principle that varieties arriving at maturity within the periods named belong to such seasons, although many, if not all, the varieties named are often kept and sold in market later in the season. We are also well aware that a few of the varieties named are placed in this list a little out of proper season so far as some sections are concerned; but, as it is necessary to draw a line, we have done so, taking the Province into consideration and the area within which such varieties can be most successfully cultivated.

THOS. BEALL,
P. C. DEMPSEY,
ALEX. McD. ALLAN.

Trenton, 5th August, 1891.

A CONVENIENT FRUIT PACKING PRESS.—The press shown herewith and patented by Robert Randall of New York, is designed to be operated by hand for pressing dried fruits, etc., in a case when packing them for market, and may also be adapted to the pressing of juices from fresh fruits. The pressing roller or wheel is mounted in a bracket depending from the inner end of a hand lever, where the lever is also fulcrumed in a bracket upon an upright. The box or package to be filled is surmounted by a removable frame, with depending flanges holding it fairly on the box and constituting a hopper. Any ordinary platen follower is placed on the fruit or substance in the hopper, and receives the pressure of the lever roller as the fruit is forced down. The device is constructed to weigh only about seventy pounds, so that it can be readily moved about a warehouse or other place where it is used.—*Scientific American.*

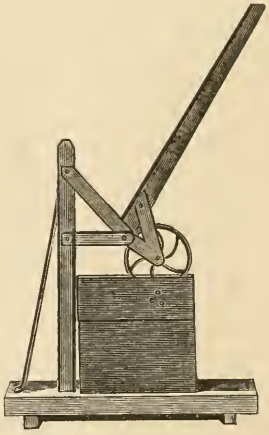

FIG. 00.—FRUIT PACKING PRESS.

EXPEDIENTS FOR PROMOTING FRUITFULNESS IN PLANTS.

ALL expedients for inducing early fruiting are founded upon the well-known law that excessive growth and great prolificness can not simultaneously exist in the same plant. Some of the most familiar modes of inducing fruit are as under :—

BY DWARFING.

In horticultural parlance, trees are said to be dwarfed when grafted or budded on stocks of weaker growth than themselves. Thus we have the pear on the quince, the cherry on the mahaleb, the apple on the Paradise stock, the peach on the plum, etc. This is a popular and efficient mode of rendering trees fruitful. Properly speaking, any low tree is dwarfed ; the term when applied to a system is merely technical.

BY BENDING THE BRANCHES.

This process practically consists in allowing the branches of a young tree to grow undisturbed by the pruning knife for several years until the plant attains considerable size ; the young shoots are then bent down and secured to pegs fastened in the ground. This mode is eminently adapted for standard pear trees, especially such varieties as Dix, Bartlett, Sheldon and others that make long yearly shoots. These when bent down soon become studded thickly with blossom spurs, and very ornamental and symmetrical trees can be formed by a little attention to the bending and regulating the shoots ; the pendent form soon becomes fixed, and trees so treated are certain to be productive. The proper season to commence tying down is the month of August ; the young wood will then be sufficiently matured to bend, and many of the most forward buds will form short fruit spurs, and bloom the following spring. Trees and plants of all kinds can be incited to flower and fruit, no matter how luxuriant their growth, by careful observance of the bending process. Horizontal training is a modification of this system, and is a well-known method of encouraging fruitfulness.

BY PRUNING THE ROOTS.

When a tree has reached a fruit-bearing size, and shows no symptoms of a fruit-bearing disposition, but instead throws out vigorous branches, root-pruning is a very efficacious mode of checking growth. In highly cultivated gardens where trees are planted and the roots have access to the rich soil, an immense crop of branches will be produced, but little if any fruit. Root-pruning will check such growths most effectually and render the trees fruitful. The operation is performed by digging out a circular trench at a distance of from three to six feet from the stem, according to the size of the tree, and cutting all the roots that are encountered or can be reached. The soil is again thrown back and the

process is completed. If done in August the supply of sap will immediately be lessened, the wood-maturing principle accelerated, the fruit buds formed. The operation has been performed in spring with but little benefit, but if done in the fall can not fail in producing the desired results.

Root-pruning has been successfully applied to young evergreens that in consequence of growing late in fall are liable to have the points of shoots injured by early frost. When growth is stopped by root-pruning, the shoots mature sufficiently to withstand the winter without being injured. A few years of such treatment when the plant is young is found sufficient, as the specimen will attain hardihood with age.

BY RINGING THE BRANCHES.

This operation is performed by removing a ring of the bark from a branch, so as to arrest circulation. This, however, is done with a view to hastening the ripening process of fruit, and has long been practiced, particularly on the grape vine. It is, however, of doubtful utility, as the branch beyond the point of operation is destroyed. It has the effect of not only hastening the ripening, but the fruit will be somewhat increased in size. Grapes produced in this manner are easily recognized by their thick skins and the coarse texture of their fruit.

BY LIMITING ROOT GROWTH.

The most satisfactory application of the principle is that of restricting the growth by confining the roots in pots, boxes or other similar conveniences, as is well exemplified by the great crops produced on fruit trees in pots. Florists are also alive to the fact that their flowering plants will blossom most profusely when the pots become well filled with roots.—*William Saunders, U.S. Govt. Supt. of Gardens.*

SUTTON BEAUTY.—Here is an apple which has long been grown in Massachusetts, side by side with the Baldwin, and holding its own with it in the opinion of many; yet overshaded by the popularity of its better known rival. Lately it is being pushed into notice by nurserymen, and it really deserves much more attention than it has had. The tree is thrifty and very productive; fruit medium or above, waxen yellow shaded and striped with a fine crimson. Flesh white, crisp, tender, juicy and mildly acid. Season, November to February.—*T. H. Hoskins, M. D.*

AT midsummer, shrubbery and evergreens require an annual trimming, to bring them into shape and induce a denser growth. Species blooming late on new wood may prove an exception, and receive similar treatment later on. The second growth after trimming is weaker, and, will not as a rule, mar the outline of the plan.—*Floral Instructor.*

HOME-MADE FRUIT EVAPORATOR.

CONSTRUCT a frame-work of scantlings, the edges of which should be dressed so that all the scantlings will be exactly the same width. Cut them four feet long and fasten together with strips of plank three inches wide, and sufficient length to place them exactly three feet and one fourth of an inch apart.

These strips should be fastened to the side of the scantlings near their ends. Make seven of such frames and place them two feet apart, and fasten together by nailing on the ends of the scantlings strips of plank for plates, and as wide as the scantlings and twelve feet two inches in length. Side up with weather boarding, or what is much better, flooring, shiplap or boxing, which should be placed on perpendicularly. At each end there should be a door.

The roof should be made in the ordinary way, except a vent at the top, two inches wide, the entire length of the evaporator. A trough like covering should be made for this opening and placed one inch above the roof. Strips of moulding, to support the trays, should be tacked to the inner edge of the studding. These strips should be at least one half an inch thick, and not more than one inch in width. Begin six inches above the lower end of the studding and tack these strips three inches apart.

The trays or frames upon which the fruit is to be placed should be just two by three feet and one inch in depth. The tray frames should be made of strips one inch square. The bottom of the trays should be made of plastering laths two feet in length. They should be placed one-fourth of an inch apart, except in the centre of the trays, where should be a vacancy of two inches to give proper ventilation.

The laths at each end of the tray should have their outer edge dressed, and should be placed on in such a way as to give the tray a play endwise in the evaporator of one-eighth of an inch. There should be seventy-two of these trays.

The evaporator, when completed, should be placed over a furnace of stone or brick, made similar to a sorghum evaporator furnace.

Dig a trench ten feet long and as deep as desired for a fire-pit, and wide enough when lined with brick or stone to be fifteen inches from wall to wall. Cover the front end of the furnace with a wide flat stone, and the remainder of the furnace with heavy sheet iron or pieces of old stoves.

Around this furnace build walls two feet high. The distance between the side walls should be three feet, and that of the end walls twelve feet. Upon these walls rests the evaporator.

There should be two or three openings, the size of a brick, left in the side walls near the ground, for the entrance of cold air, to drive the heat rapidly upward. Close these when necessary. Attach to the rear end of the furnace a stovepipe,

and let it pass through one of the side walls and up to the outside of the evaporator to the height of eight feet. Beneath the trays and above the furnace suspend by wires a strip of sheet iron, three feet wide and ten feet long. Bend this in a semi-circle so that the edges of the sides will be two feet apart. Place this sheet iron as near to the trays and as far as possible above the furnace, with its convex side downward. It will then direct the currents of hot air into the air chambers on either side of the evaporator. From thence the heated currents pass underneath and over the trays to the opening in the centre of the trays; from thence upward and out through the ventilator at the top of evaporator.—S. A. LITIMER, *before Missouri Hor. Soc.*

FARMERS AS FRUIT-GROWERS.

A farmer on one hundred and forty acres of land asks me what fruits he can raise and not have them interfere seriously with farm work. He has two small boys whom he wishes to interest and keep contentedly on the farm if possible, and he further asks whether he couldn't make fruit growing pay as a sort of annex to his farming. As to the latter part of the inquiry I would answer decidedly no, if the farming is done as it might and should be. I know a number of farmers with farms of half that size who are wholly occupied in managing and working them in regular farm crops. I have a neighbor with less than 100 acres who paid 25 cents each for grubbing up a ten acre orchard of apple and pear trees just coming into bearing, that he might devote the ground to a rotation of crops. The neighbors all considered him crazy but the outcome has proved that the land has been more profitable in farm crops than in orchard. The last season six acres of this land produced 800 bushels of potatoes, worth $1.18 per bushel. This man is an enthusiast in farming and not in fruit growing, and more successful in some of his farming than the majority. When he was grubbing his orchard it seemed to me that it would have been wiser to have grubbed two rows and left two rows alternately, and this would have left long strips capable of unimpeded cultivation, while it gave an extra chance to the remaining trees. There are many orchards where such a course would give new life to the trees left and possibly result in no diminution of the crop.

Either farming or fruit growing will fully occupy the energies and brain of any cultivator of the soil, and it is better to push business in the way of increased yield and reduced expense than to add another pursuit requiring a different outfit of tools and a different line of experience. There are some fruits that succeed tolerably well in drained, rich ground without much cultivation, especially if they are where fowls run, and of these no farmer ought to fail to have enough to supply his family. These, in the order of ease of growth and minimum of care, are cherries, grapes, blackberries, pears, summer and fall apples, quinces and currants.—*Vick's Magazine.*

SELLING BY WEIGHT.

UNDOUBTEDLY it would be much fairer, both for buyer and seller, if all fruit could be sold by weight, just as grapes and black currants are often sold. An agitation for this mode of selling has been stirred up in Chicago, but the question is yet an unsettled one. Some dealers seem to think it would be almost impossible in a very busy season to weigh everything. Here is the opinion of two Chicago commission merchants on this question.

Joseph Spies, No. 101 South Water Street, says:

"I don't think that such a scheme would do at all. In the busy time we have all we can do to handle the packages of fruit that come from different parts of the country without weighing them. Our line is fruits. Packages are put up one size in one place and another size somewhere else. We can't compel the people who put up the packages to make them of uniform size. People can see for themselves how much they are getting, and if they don't want to buy they needn't. Suppose that everything had to be weighed in the strawberry season. It would take four times the help that is required now. We want something that will require less help, not more."

Manager Watson, of Porter Bros., Nos. 97 and 99 South Water Street, says:

"It will never be practicable to sell fruits by weight, and it would not be to the advantage of any person concerned. It would take so much time, in the first place, to weigh everything. Now by 10 o'clock in the morning we have fruit shipped and on its way to a thousand places out in the country. If we had to weigh everything we couldn't get through by 10 o'clock at night. The weighing system would be a benefit to the growers of small and inferior fruit. A given quantity of fruit that is small will pack closer, and therefore weigh more, than the same amount of large, fine fruit. The growers of fine fruit are the ones that attend to their business, and the ones that ought to be encouraged, not the drones that neglect their gardens and nurseries and raise a stunted growth. For the same reason weighing would not be to the advantage of the consumer. Potatoes and other produce that have always been sold by the pound, or by the bushel on a bases of so many pounds to the bushel, will probably continue to be sold by weight."

PROFESSIONAL TREE PRUNERS.—They usually do much damage to the fruit trees they get a chance at. I know of one young orchard in which the "professional" had full sway. I am doubtful if it ever will recover from the cutting it received. All the bearing wood had been cut away, and the bare limbs and trunks of the trees were good places for the flat-headed borer. A tree in health is so well protected by leaves that the sunlight seldom strikes limb or body. A tree naturally needs no trimming, if it has plenty of room, and not interfered with in any way; but transplanted trees are in artificial condition; they are cut back more or less, and in most cases are left with too many limbs when set in the orchard. A neat, compact tree will do the best every time, but better never trim at all than employ a so-called tree-trimmer. Trees that grow like the Baldwin should be started with open heads. The Greening will rarely get much too thick if started a little open at first. The Bartlett is sufficiently open: but the top should be taken out sometimes when inclined to run too high. It costs too much to gather the fruit when it is too far from the ground, and the men who can handle long ladders are getting scarcer every year.—*J. T. Blackwell, in Rural New Yorker.*

New or Little Known Fruits.

EVERY week we receive quite a number of samples of new varieties of fruit from various parts of Ontario, many of which appear to us to have great merit.

While we have no interest whatever in the advantage which may accrue to any nursery or individual, through the publication of the merits of any of these new varieties, yet it is the duty of our Association, and one of its important objects, to encourage, by all proper means, the production of new and improved varieties of fruit, suitable for our Canadian climate. Indeed, it is from these that we are to expect those fruits, which will be most profitable for our commercial fruit growers. The cultivated fruits, which originate in any country, are usually better adapted to succeed in that country than foreign varieties. This is plainly demonstrated in the case of the foreign grapes, most of which are subject to mildew with us, while our natives of the Labrusca type are so little affected. The same is also true of our gooseberries ; those of American origin, such as Smith, Downing, Triumph, Pearl, Ruby, Sutherland's Seedling, and others to which reference is made in these pages, being so entirely free from that terrible disease.

During the last month a number of new varieties of gooseberries have been sent in to us for our opinion, and certainly many of them possess a very high degree of merit, introducing a new era of profitable gooseberry culture into Ontario. Certainly this fruit has, to a large extent, been neglected by our market gardeners, and the price, which this fruit brings, plainly indicates that, with proper varieties, there would be plenty of money in the business.

A sample of the Pearl gooseberry, to which reference was made last season, lies before us on the table, and certainly bears out all that we have stated concerning its productiveness, and yet, notwithstanding the enormous load of fruit which it bears, the berries are of a good size and excellent quality.

We have also before us a sample of the Ruby, a berry much of the same size as the Pearl, but of better quality. This, however, does not appear to be so productive as the latter.

The Pearl is being tested in our own grounds at Maplehurst, and another year we shall have more to say concerning it.

Below will be found notes of letters from some of the parties sending us samples of fruits, together with a few remarks concerning them. It must, however, be borne in mind that anything which we may say under this head is based upon the appearance of the sample sent us and, therefore, must not be given too much weight.

SUTHERLAND'S SEEDLING GOOSEBERRY.

We have just received (July 29) a box of samples of this gooseberry from Mr. Geo. Sutherland, Meaford, and certainly we must record a still more favorable impression than the one noted on page 273 of volume 13. It is almost as large as the preceding, of a little whiter skin, firm enough for distant shipping, and, according to Mr. Sutherland, exceeds any variety for productiveness. Mr. Beall was not favorably impressed with its quality, but the samples sent him were not mature. These are of good quality.

In reply to an enquiry for further particulars regarding this berry, Mr. Sutherland writes:

SIR,—The origin of the gooseberry is fully stated in the HORTICULTURIST of September, 1890. I found it growing in my garden under a Downing bush, some years ago. I removed it, thinking at the time that it was a sucker, or layer plant of the Downing. When it blossomed I saw immediately that it was not the Downing, and as there was no other variety grown in my garden I accepted it as a chance seedling. It has fruited five seasons, is an enormous bearer; has never shown the slightest sign of mildew up to the present time. The bush is a strong, upright grower, strongly resembling the Downing in appearance. In fact, after the fruit has been removed from the bushes you cannot distinguish any difference in the bush. A great many people have visited my garden to see this gooseberry, and all who have seen it are loud in their praises. Since you so kindly noticed it in your excellent journal, I have had many enquiries for plants, but the only plant I have ever taken from the original was the one sent to you this spring. I have watched this gooseberry with considerable interest. Its size and productiveness seemed to be all that any person could desire. It has now fruited five years, which is a sufficient time to allow it to exhibit any weakness, and so far it has never disappointed me. In conclusion, I may mention that my soil is a rich clay loam. Three years ago I planted Industry and Whitesmith in the same part of the garden occupied by the seedling. Industry and Whitesmith have mildewed, but the Seedling has not. I do not pretend to say that it never will mildew. (I have seen Downing mildew in some places.) All I can say is, that so far it never has; and if it receives decent care I do not think it ever will mildew.

GREENFIELD'S SEEDLING GOOSEBERRY.

SIR,—I send you a bunch of my seedling currant. It is not the best, as I have had one stem with no less than twenty-one berries upon it. The bush from which these were gathered is thirteen years old. I also send you some samples of two varieties of gooseberries. They are productive, hardy, and not subject to mildew.

S. GREENFIELD, *Ottawa, Ont.*

The branch of currants sent us by our friend, Mr. Greenfield, of Ottawa, is certainly very fine, and seems to be worthy of cultivation. In size they are not quite so large as the Cherry, but probably average a little larger than the Victoria. Upon four inches of wood we counted nine stems of fruit, one of which was four inches in length, and contained eighteen berries. What we want, to make currant growing profitable, is a berry as large as the Cherry, and as productive as the Victoria, a want which is partially supplied by Fay's currant.

The gooseberry No. 1, enclosed in the same basket, is yellow, of good quality, oval and medium sized, averaging about an inch in length. No. 2 is a large green berry, about equalling the Sutherland in size, but not so productive.

In color it is a darker green, skin is not so transparent, and the quality too, in our opinion, is only ordinary.

TRIUMPH GOOSEBERRY.

SIR,—I send you by mail a sample of Triumph gooseberry. The bush is a strong, vigorous, upright grower, and so far, has been perfectly free from mildew. It is also very productive.

A. A. ROLPH, *Orono, Ont.*

The samples of this excellent gooseberry sent by our subscriber, Mr A. A. Rolph, of Orono, July 30th, are of large size, reaching an inch and a third in length. It is claimed to be a purely American seedling, and consequently, very little, if any, subject to mildew. The fruit is white, and averages as large as the Whitesmith. The variety is offered for sale by nurserymen, and, if such berries as the samples before us, can be got from it in any quantity without mildew, surely no better gooseberry is wanted for market purposes.

SUTHERLAND'S, GREENFIELD'S, AND THE TRIUMPH GOOSEBERRIES.

Knowing Mr. Morton, of Brampton, to be an experienced gooseberry grower, we forwarded samples of these berries to him, and since writing the above, have received the following reply :

SIR,—I received three samples of seedling gooseberries from you for my opinion of the merits of each as to appearance, size and quality.

I am sorry that press of engagements and preparation for a visit to Europe has prevented my complying sooner.

It is hard to judge correctly of the quality of gooseberries that are pulled any length of time, as they soon deteriorate and taste very differently to what they do when fully matured and eaten within 48 hours from pulling.

Sutherland's Seedling.—This is in my opinion a seedling of English parentage, and resembles Whitesmith in form and color. Sample had been pulled while immature, but I should suppose it will resemble the Whitesmith in quality, which is first-class.

Triumph.—This also shows its English parentage. Size, large ; form oblong ; color, light ; quality good, but condition of sample prevents me speaking with confidence on that point ; but I am inclined to believe it is a berry of some merit, and if mildew proof, will be an acquisition to growers of that fruit.

Greenfield's Seedling.—Size, medium, as compared with English kinds ; color, dark yellowish-green, not so inviting as the other two ; form, round and regular ; quality, fair, not equal to the others.

If they are really mildew proof they are decided acquisitions, but before any new variety can positively be declared mildew proof they would require to be

tested in various localities and in all kinds of soil, particularly in light sandy soils. I have two seedlings of good merit, which have fruited for several years and shown no signs of mildew, but I could not claim for them exemption from mildew, as my soil is heavy clay, and I claim that on such land with ordinary nurture, all English varieties are free from mildew

SEEDLING GOOSEBERRY AND SEEDLING RASPBERRY.

SIR,—I mail you to-day a sample of seedling gooseberry raised from Houghton, and also a cluster of berries from one of my new seedling raspberry plants. The latter is by no means the largest bunch, as the birds have claimed the largest for their share.

JAMES WATERS, *Fernhill.*

The gooseberries enclosed by our correspondent are oval in shape, very dark, green color, smooth skin, and, apparently, very late in ripening. They are smaller than either Smith's Improved or Downing, and, consequently, would not be particularly desirable for market. But the raspberries are a fine large sample, and would lead us to suppose this to be a very promising seedling.

CARNIE'S GOOSEBERRY.

SIR,—I send you a few gooseberries of the variety I showed you last year. It has never mildewed yet, and this is the sixteenth year that I have grown it. I have gathered fruit from it untainted with that trouble, and sometimes it was surrounded with others which were covered with mildew. Please give me your opinion respecting the merits of the fruit.

JOHN CARNIE, *Paris, Ont.*

We noticed this variety on page 271 of Vol. 13, and from the sample before us, think that altogether too little was said in its favor. It is a large yellow gooseberry, larger than Whitesmith, nearly round in form, and the flesh is tender, sweet and excellent in flavor. Mr. Carnie told us a year ago that this was one of twenty varieties which he had brought out from Scotland some sixteen years ago, but of which he had forgotten the name. We are all aware of the numerous varieties of gooseberries under cultivation in the "Old Country," but nearly all of them prove a failure when we attempt to grow them in Canada. This one, however, seems to be an exception, and it is unfortunate that the name of such a variety so valuable to us should have been lost. In the meantime we will speak of it as the Carnie, until it is properly identified.

HYBRID GOOSEBERRY.

SIR,—I send you samples of two seedling gooseberries. The dark green colored one is a cross between Whitesmith and Downing, and the pale golden colored one between Industry and Whitesmith. The latter was grown by Mr. Farley, and the former by myself. The bushes are strong, upright growers, and neither have been affected with the mildew this year.

JAMES BRYAN, *Lucknow.*

The dark green berries are rather too small to make them desirable for the market garden, but the yellow ones are a better size, being nearly as large as Whitesmith, and of fully as good quality.

STEWART'S SEEDLING APPLE.

SIR,—I send you by mail two seedling apples, to see what you think of them as an early variety. They ripen here at the same time as the Early Harvest.

JOHN STEWART, *Benmiller.*

This apple certainly impresses us very favorably. It is about the same size as the Early Harvest, roundish in form, with cavity and basin each of a moderate depth; the skin is nearly covered with bright red on one side, and plainly mottled and dotted with light green. The flesh is white, tender, rich, juicy and of good quality, but inferior in this respect to the Early Harvest. This is an excellent summer dessert apple, and it is suitable for eating out of hand earlier in the season than the Yellow Transparent. It is prettier than the Early Harvest, and just the right size for placing on the table. We hope to hear more about this apple in the future.

The Garden and Lawn.

SEASONABLE HINTS.

CUTTINGS taken early from the geraniums make nice little blooming plants for the window. Such plants, for example, as will do well even in a three-inch pot and so stand on small shelves at the sides, enliven up a plant stand by a bit of bloom. Such plants are more likely to give satisfaction as bloomers than those taken up out of the flower garden in summer. Along in September is the time when cuttings can be made from all kinds of bedding plants, and so kept over winter, several in a pot or singly in thumb pots. Such plants as have been kept in their pots and out of doors should be occasionally examined to see that the roots do not get through into the free ground. A twist of the pot every now and again will break off the growing roots. The same holds good with such strong growing plants as the chrysanthemum, particularly towards fall, when growth is apt to be robust. Pinching off the tops will be safe with chrysanthemums up to the middle of September, and to produce a more bushy plant than if left to grow on without stopping. A mulching of rotten manure on the top of the pots will now be a great help; or, in its absence, manure water may be applied once or twice a week. This plant wants plenty of water when growing fast, and if allowed to wilt before it is applied, is almost sure to cause the lower leaves to turn yellow. A fine grown chrysanthemum should have the leaves fresh and growing almost to the pot. This, with a thinning of the buds very soon after they appear, is the secret of the immense flowers exhibited at the fall shows.

Callas kept in a dormant state in summer may now be safely started by re-potting and giving water rather freely. A calla is quite accommodating : it may be allowed to grow on all the time, or be treated in summer as a dry bulb. Some grow them one way and some the other.

MAKING GOOD LAWNS.

THE subject of lawn making has been written on by novices and experts, until the average reader has in mind a mixture of oats, barley, timothy, compost and moles, all, in his opinion, to some degree necessary to lawn making.

William Saunders, of the Department of Agriculture, gives the following points on lawn making, which may be considered as results of experience.

1. The best grasses for permanent lawns are red top (*Agrostis vulgaris*) and June grass (*Poa pratensis*). The following proportions have been used in the lawns of this Department with great satisfaction : One bushel red top, two bushels June grass, one quart timothy to each acre of land. These should be thoroughly mixed before sowing. This is heavy seeding, but experiments demonstrate that a good lawn can only be secured by heavy seeding when sown in the spring ; autumn sowing may be thinner, but the thick seeding will be most satisfactory. There is no grass equal to the June grass for fine lawns ; this is also known as green grass and Kentucky blue grass. The red top also forms a good sward when the soil is good and the summers comparatively cool and moist, but during dry warm weather it becomes hard and wiry. The timothy grass vegetates quickly and greatly assists the growth of others.

2. The practice of sowing oats, barley, or other grains with the grasses, under the impression that they will protect the young plants from the sun and drought, is altogether wrong, as it practically does much more harm than good. The larger growing plants rob the soil of its moisture, to the destruction of the tender and more feeble rooting grass plants. No such protection is necessary, even were it possible to supply it without injury. With fair preparation of ground, the seed put in as soon as practicable in the spring, the lawn will be fit to mow in June at latest.

3. The lawn will be benefited by a top dressing once in three or four years ; not, however, by throwing over it an unsightly covering of rough, strawy litter, which, however beneficial, is not commendable in neatly kept grounds. A compost made up of fresh stable manure and any ordinary good surface soil, thrown together in layers, and intermixed and pulverised by frequent turning during the summer, will be in condition for application any time in early winter, This should be evenly distributed, broken up, and raked in among the roots, taking advantage of frost to assist in the work of disintegration and removing the rougher portions altogether before rolling the lawn in the spring.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1 00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

THE TORONTO EXHIBITION.—The Directors of the Toronto Industrial Exhibition Association are determined to look well after the interests of the exhibitors in the Horticultural Department at their Fair. They are now erecting for the coming Exhibition a new building, costing over $6,000, specially for the exhibit of fruit. The building is very commodious and attractive looking, and is being erected in view of the large exhibit of fruit which is sure to be made at the Exhibition this year. The building is 118 feet long by 58 feet wide, and contains 6,844 feet of floor space. Two thousand one hundred square feet of this space is devoted to the displays for fruit, leaving ample space for the public. Provision is made for 2,500 plates of fruit. Ample ventilation has been provided for, the ceiling being 24 feet in height. This new Fruit Building will be a great point of interest during the coming Exhibition from the 7th to the 19th of September, which promises this year to be greater and better than ever.

THE AMERICAN POMOLOGICAL SOCIETY will hold its next biennial session in the city of Washington, D. C., on the 22nd of this month, to continue for three days. The meeting is to be held there in accordance with an invitation from the Secretary of Agriculture, Hon. J. M. Rusk, and will meet in the National Museum in that city. The work of this Society in promoting and elevating the standard of pomology in the United States and the British provinces has received the hearty recognition of the Department of Agriculture, as is shown by this invitation to hold the next meeting under the auspices of that Department. A cordial invitation is extended to all pomological, horticultural and agricultural societies and associations, in the United States and the British provinces, to send as large delegations as they deem expedient to attend this convention.

THE GRANDEST EXHIBIT of Begonias ever seen was made by the celebrated nurserymen and seedsmen, Messrs. John Laing & Sons, of Forest Hill, London, England, in the Crystal Palace, last July. We have before us a photograph of this magnificent display, which covered 300 square feet of space, and carried off four gold medals. This is one of the most interesting class of flowers for the amateur, and a glimpse of such an exhibit as this arouses all one's love of the beautiful, and makes one long for a few of the new and more excellent varieties.

SAMPLES OF SIMON'S PLUM, from Mr. A. M. Smith, are well up to the size and beauty of those shown in our colored plate in July number, 1889. One sample measured 7¼ inches in circumference, and all are very beautiful in appearance. Ripening just in advance of the plum crop, they should be quite saleable.

Question Drawer.

PROPAGATING SHAFFER'S COLOSSAL.

SIR,—When is the best time to propagate Shaffer's Colossal, and how do you proceed?

ALFRED LIMOGES, *St. Eustache, Que.*

The Shaffer raspberry is propagated in the same way as Blackcaps, its habit of growth resembling theirs, so that new plants are procured from the tips and not from the succers. This work should be attended to immediately after fruiting season, and, if the ground has been well worked, it may be done very easily. As fast as the young canes or branches drop within reach of the ground, an opening should be made with a spade in a slanting direction and the tip inserted and the ground pressed firmly back with the feet. The rows should be gone over in this way several times during the season, as the new growth reaches the proper length, and, if the work is well done, they will hardly fail to take root before the season is over, and in the following spring a shoot will start from each of these layers and will be found to be well supplied with fibrous roots which will insure perfect success in transplanting. We give here an illustration, taken from Mr. Green's book on the propagation of small fruits, showing the way in which tip plants are propagated.

FRUIT FOR CANNING FACTORIES.

SIR,—Do you know what is the price paid by the western canning factories for strawberries, beans, peas, corn and tomatoes?

A. LIMOGES, *St. Eustache, Que.*

Reply by Delhi Canning Factory Company.

Prices for fruits and vegetables vary considerably and are regulated by demand and supply, but the following will give the highest and lowest prices paid by our Company for ten years:

Strawberries, lowest 3c. per lb., highest 7c.; peas, 1½c. per lb. in pod; beans, 1c. to 1½c. per lb. in pod; corn, $8 to $12 per 1000 in husk; tomatoes, 25c. to 40c. per bushel.

ROSES NOT BLOOMING.

SIR,—I have rose bushes which were in bloom about four years ago; when I bought them I of course moved them to my place and they have grown well, but have never had a bloom on them. What will I do to make them flower?

W. E. NORRISS, *Walkerton.*

Reply by Messrs. Webster Bros., Hamilton.

Possibly these were originally budded on the Manette stock and the stocks have been allowed to shoot and thus kill the improved variety. If such is the case the cure is to dig them out and replace; otherwise, it is just possible that they are pruned too severely. Should it be that they make a luxuriant growth every season and show no buds, we would suggest root pruning or transplanting and moderate top pruning. Not knowing what variety of roses they are it is somewhat difficult to attribute the cause or suggest a cure.

UNLEACHED WOOD ASHES.

SIR,—Can you inform me if unleached wood ashes are obtainable in any quantity, and at what price?

H. H. ARDAGH, *Toronto.*

There is little difficulty in most country places, where hardwood is burned, in obtaining any quantity of wood ashes at about 10 cents a bushel. Of course it is necessary to find a teamster in such a locality who will go from house to house collecting them.

PEARS FOR THE NORTH SHORE OF LAKE ONTARIO.

SIR,—Will some of your correspondents state what varieties of pears they have found to be most profitable for cultivation in the north shore of Lake Ontario, between Hamilton and Toronto?

H. H. ARDAGH, *Toronto.*

Will some of our correspondents living in that section please reply?

Open Letters.

THE APPLE PROSPECT IN BRITAIN.

LONDON.

SIR,—The progress of budding, blossoming and setting of fruit-bearing trees has greatly varied during this season (which has been unusually late this year), and the minds of growers have alternated between hopes of great abundance and fears of failure of the crops. At the comencement the show of fruit was highly favorable for abundant crops, specially of apples ; the hopes thus raised were, however, quickly frustrated through continued frosty weather and torrents of icy cold rains, the damage then not appearing so great as it now proves to be. In some districts the yield of fruit was almost more than the branches could support, and not much notice was taken of some fallings, which have since increased to such an extent as to almost denude some trees of the fruit, and this is attributed to the unseasonable weather during the setting period, and which has seriously upset previous estimates as to the probable yield of the apple crop.

A careful summary of the various reports received, as well as personal investigation, gives the following results :—

ENGLAND.—The reports from the *Western Counties* indicate a fairly average crop, consisting mainly of cider fruit.

Southern Counties.—These are the principal contributors of apples to the London market. From some parts over an average crop is reported, while in other parts the crop is stated as under an average.

Midland Counties.—A fair average crop is reported.

As to the remaining parts of England, as well as Scotland and Ireland, it may be accepted that the crop will be under an average, and, in a few districts, especially in Ireland, it will be almost a failure.

The reports from the Continent may be summarized as follows :—

HOLLAND AND BELGIUM.—The apple crops originally promised well, but. owing to bad weather, large quantities are falling from the trees, and late sorts will be scarce.

FRANCE.—Advices, though not wholly satisfactory, point to a fair average crop, and early sorts will be rather abundant.

GERMANY.—Reports are more satisfactory than from any other part of the Continent, and indicate a full average apple crop of both late and early kinds.

The other parts of the Continent have little (if any) influence on the importations from your side of the Atlantic.

After careful perusal of the various reports and consideration of all the facts that have come to my knowledge, and of the influences they bear on our importations from America and the British Colonies, I am of opinion that there will be an ample home supply of the earlier sorts of apples, and as regards the London market we shall not require to draw any from your side till well on in the month of November, but shipments to Liverpool and Glasgow can be fairly made somewhat earlier.

J. B. THOMAS, *Covent Garden, London, Eng.*

LATER FROM LONDON.

SIR,—You will have my circular as to apple prospects on this side. I may, however add, that owing to continued rainy weather, "fallings" are getting very heavy, and it appears that good keeping sorts are scarcer than we have anticipated recently, but as a matter of fact the home crop is, after all, of minor importance as far as exports from your side are concerned, as it only means a few weeks delay in shipping from your parts, even if we have a full crop ; and if your crop is a good average, and you can ship largely, imports to any extent from the European Continent is not possible, as it does not pay them to compete.

Yours faithfully,

London, August 15th, 1891. J. B. THOMAS

LIVERPOOL.

SIR,—As the apple season is approaching, we state on good authority that the crops of the United Kingdom and Continent are fully up to the average, but as these growths of fruit cannot compete with yours, we recommend shipping fine large stock, which will be wanted, and for same, anticipate good prices being returned. We would advise particular attention being paid to the quality, as low grades will be less required than usual.

L. W. WILLIAMS & Co.

FRUIT CROPS IN ESSEX COUNTY.

SIR,—Since I reported to you in June the fruit prospect for this district, there have been some changes taken place, for instance, the grape crop prospect has advanced to 80% of a full crop, peaches will yield 90%, pears about 60%, plums very light, not over 20%, apples have gone back to 25%, owing largely to the amount that have fallen from the trees. Greenings and Baldwins will likely give the largest returns. It is reported from good authority that Mr. E. Tyhurst, of South Essex, was offered $9000 for his peach crop of 75 acres or 18000 trees. It has been dry in this district for the last month, and the weather has been unusually warm, the thermometer registering as high as 98° one day, and 96° the next.

N. J. CLINTON, *Windsor*.

ORLEANS PLUM.

SIR,—I send you samples of a plum for name. I was told some years ago that they were Purple Orleans, but I cannot find it mentioned in any catalogue. The tree is hardy and vigorous, the foliage dark green, and a sure cropper every year. We are going to set out an orchard of plums this fall, and would like to set more of this kind if we can get them.

WATSON MCMONIES, *Waterdown*.

This plum is without doubt the Orleans which has a large number of synonyms, as Red Orleans, Old Orleans, etc. It is a popular English market variety, sweet, yellowish flesh and free stone, and ripening about the middle of August.

APPLE GROWING ABOUT MONTREAL.

SIR,—The apple crop is so plentiful in this section, especially Fameuse, that I am intending to send forty or fifty barrels to the Old Country. We can pack and put them on board ship the same day. From past experience good Fameuse took well in Scotland. At present apples are a drug in our markets, being sold at $1.00 and $1.25 a barrel.

The planting of the Duchess of Oldenburg in this section has been overdone ; one of my neighbors has set out five hundred this spring.

R. BRODIE, *St. Henri, P.Q.*

CROPS IN LAMBTON.

SIR,—I have just finished handling my berry crop which has been a bountiful one, five and a half acres of strawberries giving me in return $900. The raspberries, which were never so plentiful, made good returns, while the small fruits were quite up to the average in quantity and price. The dry weather and robins have cut short the blackberry crop in this locality. Peaches, where grown, are plentiful.

A. HILL, *Wyoming*.

Our Book Table.

BOOKS.

Practical Farm Chemistry, by T. Greiner, author of "How to Make the Garden Pay;" "The New Onion Culture." 163 pages, in cloth, price $1.00. Published by T. Greiner, La Salle, N. Y.

This book comes to our table fresh from the press. It treats in a plain common sense way, on a question of vital interest to every farmer and fruit grower, what are the best fertilizers to be applied to our crops, where and in what form to procure them most cheaply, and how to apply them for the best results. The type is large and clear, and the whole book is got up in such a readable and popular form as to be attractive even to those who have not been trained to study. We would advise every reader of our journal to secure a copy of this book and study it carefully.

The People's Horse, Cattle, Sheep and Swine Doctor; Containing in four parts clear and concise descriptions of the diseases of the respective animals, with the exact doses of medicine for each. Edited by William H. Clarke. Illustrated. Extra cloth binding. Price $1. M. T. Richardson, Publisher, New York.

A book on diseases of domestic animals, which should present a description of each disease and name, the proper medicines for treatment in such condensed form as to be within the means of everybody, has long been recognized as a desideratum. The work before us appears to cover the ground completely. The information is arranged so as to be easily accessible—an important consideration. Each disease is first described, then follows the symptoms by which it may be recognized, and lastly is given the proper remedies. The different medicines employed in all diseases are described and the doses required are given. The book is copiously illustrated, including engravings showing the shapes of horses' teeth at different ages. An elaborate index is a valuable feature.

Transactions of the Iowa State Horticultural Society for 1891. Twenty-fifth Annual Session held at Des Moines, January 20, 21, 22, 1891. Also proceedings of the Western, Eastern and Northern Societies for the year 1890. Geo. Van Houten, Lenox, Iowa, Secretary.

First Biennial Report of the Oregon State Board of Horticulture to the Legislative Assembly, Sixteenth Regular Session, 1891. Secretary, E. W. Allen, 171 Second St., Portland, Oregon.

CATALOGUES.

Catalogue of Bulbs for Winter and Spring Planting, 1891-92. A. Blanc, 314 North Eleventh St., Philadelphia, Pa. In this catalogue Mr. Blanc places before us a large number of rare and very interesting bulbs. He has evidently struck out in a line of novelties, which will be much sought after by those who like something rare and out-of-the-way. This catalogue will be sent free on application to any of our readers who choose to write for it.

PAMPHLETS.

Constitution and By-laws of the Canadian Press Association, and Report of Thirty-Third Annual Meeting, 1891.

Prize List of Central Canada Fair, 1891. Ottawa, Sept. 24th to Oct. 3rd.

Prize List Western Fair, Industrial and Art Exhibition, London, Ont, Sept. 17th to 26th.

Fourteenth Annual Report of the Omaha Board of Trade. 1890-91.

Our Markets.

Notwithstanding the croaking of some interested parties who are crying down the apple market, and trying to make out that the crop is abundant, we are most hopeful that high prices will prevail for good sound winter stock.

Certainly, a repetition of the experience of 1888 to '89, when a million and a half barrels of apples were exported to Great Britain, need not be expected this season. The amount will more nearly compare with last year, when the amount was less than one-third that amount. Here are a few reports from reliable dealers in the various markets, which may be useful to our readers.

LONDON, ENGLAND.

SIR,—Since we last addressed you, English apples are coming on the market. From what we see, there will be little chance of fall fruit paying for this market. There is no doubt that as the season advances, the quality of English apples falls off; and although we may have a large crop here for consumption during the months of August, September and October, there is little doubt that later on, there will be an active demand for good Canadian fruit. This applies especially this season, as we hear that it is an established fact that, in addition to the crop in Belgium, Holland and Germany being short, the quality is of very inferior description. We are satisfied that good Baldwins, Kings, Russets and Greenings will meet an active demand here. The great consideration for shippers will be the cost, and it will need all their caution and care of the fruit to ensure their bringing a profit. We can safely predict that any apples that arrive in really good condition, well and honestly packed, are not likely to lose money, but inferior quality, badly packed stuff, we think will certainly do better with you than with us. As soon as supplies become regular, we shall advise you by cable, and any further information that may be of consequence we shall give you.

Yours faithfully,

GARCIA, JACOBS & CO.

LIVERPOOL.

American apples (according to cable from J. C. Houghton & Co.) sold in Liverpool at from $2.68 to $4.14 per barrel according to quality. The parcels sold were not in prime condition, some of the apples having been of too soft a kind to stand the voyage.

Messrs Jas. Lindsay & Son, of Glasgow, Edinburgh and Leith also cable that what few have reached their market have sold at high prices: too high to be a guide to shippers, as with larger supplies the market will decline.

Messrs. Woodall & Co write: The experience of the last two years is again repeated: there was an early promise of an abundant crop, but frost and cold winds in the spring and early summer caused great damage, the result being that, although rather better than last, the crop can at best only be a small one. Out of 187 reports, 24 are over average, 83 are average, and 80 are bad and under average.

The reports from America are not generally favorable, and altogether the prospects are that during the coming season our markets will not be heavily supplied, so that in all probability prices will range about the same as last season.

KINGSTON.

Peaches, Crawfords, per basket	$1.00 to	$1.40
" common, "	60 to	80
Pears, Bartlett, "	75 to	90
" common, "	30 to	40
Plums, Blue, "		50
" Gages, "		50
Grapes, Champion, per lb		6

B. HARE, *Agent.*

GLASGOW.

SIR,—Our reports from your country regarding apples is that there will be large crops, the same can be said of Germany, Holland, Belgium, France, and our own country ; so prices will rule moderately as compared with last season. Canadian fruit is fast growing in favor here, and we are prepared to handle large quantities this season.

BOYD, BANERO & Co.

GUELPH.

This market was well supplied to-day with fruits and vegetables, and all good stock was quickly bought up and sold as follows :

Crawford Peaches, per 12-qt. basket	$1.25 to $1.50
Other varieties do. " "	60 to 1.00
Bartlett Pears, " "	60 to 1.00
Do., American, per bbl.	4.00 to 6.00
Common do., per basket	30 to 90
Apples, Red Astrachan, per basket	25 to 35
" " per bbl	1.50 to 2.00
Plums, Green Gages, per basket	50 to 75
" Lombards, "	60 to 75
" Washingtons, "	75 to 1.00
" Blue, "	50 to 60
Tomatoes, per basket	40 to 50
" per bushel	1.00
Watermelons, American, each	15 to 20
Musk Melons, Canadian, per doz	40 to 1.00

H. WALKER & SONS.

MONTREAL.

SIR,—Fruit trade here is very brisk, the receipts of most kinds being large, in fact the only exception is apples.

Apples are scarce, $1.75 to $2.25 per barrel. Plums, receipts very heavy, selling 70c. to 80c. per basket. Peaches, Canadian, $1.00 to $1.25 per basket ; Michigan, $4.50 per bush. basket ; Deleware, $1.25 to $1.75 per basket ; California, $1.75 per box ; grapes, very few yet, 6c. to 7c. per lb. ; Bartlett's selling $5.00 to $7.00 per barrel ; to $1.00 $1.25 per basket. The receipts are very heavy from all sections, but sell freely.

We expect there will be no decline in Bartlett's, but Flemish Beauties will sell off somewhat. Plums have arrived freely and the market has been difficult to sustain. Everything now depends upon receipts.

Montreal Sept. 1. VIPOND, MCBRIDE & Co.

TORONTO.

Peaches, Crawfords, are now coming more freely, varying in price from $1.25 to $1.75 ; common kinds, 75c. to $1.25. We expect Crawfords to keep pretty good prices on account of Exhibition coming on right away. Plums 40c. to 75c. per basket. Pears, common, 25c. to 40c. per basket ; fancy, 50c. to 75c. Lawton Berries, 7c. to 9c. Tomatoes, 30c. to 40c. Grapes, 4c. to 6c. Apples are in much better demand ; baskets, 25c. to 35c. ; bbls., $1.75 to $2.50.

Quite a few Delaware Peaches came in during last week and were sold for $1.00 to $1.50. Foreign Fruits about through.

J. W. BROWNLOW,
Toronto, Sept. 1, 1891. *Agent, N. D. F. G. Stock Co.*

BUFFALO.

Peaches continue to arrive freely from Maryland and Delaware. Early State varieties also in good supply; all receipts in good condition in fairly good demand, especially good yellow stock. Blackberries, only a few arriving. Huckleberries, arrivals continue liberal, demand only fair. Grapes in good supply, demand fair; State stock arriving, selling fairly well. Watermelons, receipts fairly liberal, demand fair for large fresh stock. Canteloupes in fair supply and demand. Apples, market cleaned up, good demand for fine State stock, highly colored fruit wanted, inferior slow sale. Pears in fair supply, State Bartletts commencing to arrive. Plums arrive freely, moderate demand for best varieties.

NATIVE FRUITS.

Blackberries, per quart	$0 06 to	$0.08
Huckleberries, "	7 to	9
Apples, per bbl., sound	1.50 to	2.00
" inferior, per bbl	75 to	1.00
Pears, Bartletts, State, per bbl.	3 50 to	3.75
" " Southern, "	3.00 to	3.50
" " " per half bbl	1.50 to	1.75
" other varieties, per bbl.	2.00 to	2.50
Watermelons, per hundred, large	14.00 to	16.00
" " medium	10.00 to	12 00
Canteloupes, per crate	1.00 to	1 25
" per basket	50 to	60
Nutmeg Melons, per bbl.	1 25 to	1.75
Plums, per small basket	25 to	35
" per large basket	50 to	75
Prunes, per basket	to	
Peaches, Maryland and Delawares, yellow fancy, per basket	75 to	1.00
" " " red, per basket	50 to	65
" Jersey, yellow, per basket	50 to	60
" " red, "	30 to	45
" Early varieties, "	25 to	30
" State Crawfords "	to	
" Canadian, "	60 to	70
Grapes, River, per case	1.50 to	1.60
" large, per basket	35 to	40
" small, "	20 to	25

CROP PROSPECTS.

The yield of apples will this year probably be light, so far as Ontario is concerned, lighter even than last year. The quality of the fruit is, however, very fair, and the sample generally well shaped and free from blemishes. Harvest apples have yielded somewhat better than the later varieties. Pears are also a light yield. The causes of the deficiency are stated to be frosts at the time of blossoming, and the general drouth. The trees are stated to have blossomed well, but even where the young fruit had formed it afterwards fell off, in some instances on account of insufficient moisture. There has been a fairly good yield of other tree fruits. Cherries have been unusually abundant. Plum trees are well loaded with fruit, but their number has now been so greatly diminished by the black-knot scourge that the yield of fruit cannot be a large one. Grapes and peaches were slightly injured by late frosts, but the yield of both is good. Small fruits have been very plentiful almost everywhere, but least so in the Lake Erie district. Raspberries were unusually plentiful in some of the more northern counties. Strawberries yielded fairly well, but the fruit was rather undersized. On the Niagara peninsula there has been a good yield of all varieties. Plums are yielding well, and so are peaches, with the exception, perhaps, of Crawfords. Grapes will also yield well, and both peaches and grapes are pretty free from blight or mildew.

—*Bulletin 37, Ontario Bureau of Industries, 1891.*

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THE

Canadian Horticulturist.

Vol. XIV. 1891. No. 10.

THE GUEII PLUM.

SINCE plum culture is becoming so important a department of the fruit-growing industry of Ontario, and so many of our growers are desirous of becoming acquainted with the best and most profitable varieties, it will be certainly opportune for us to devote somewhat more attention to this fruit in our pages.

Our attention was drawn to the Gueii plum at the last meeting of our Association, in the City of Hamilton, by Mr. S. D. Willard, who is an experienced plum grower, and has much success in growing plums for market. Being asked what six varieties were the most desirable for home use, he gave the following list: Bradshaw, Lombard, Gueii, Hudson River Purple Egg, Peters' Yellow Gage and Coe's Golden Drop. The same varieties were, for the most part, valuable in the commercial orchard.

In answer to an inquiry concerning his experience with this plum, Mr. Willard writes: "The Gueii originated at Lansingberg, near Troy, in this State, and has been fruited in this vicinity for several years. It is a rich, dark colored plum, with a beautiful blue bloom, rendering it very attractive as a market fruit. It is very hardy and very productive, and has been constantly growing in favor since its introduction. It ripens about the time of the Lombard, and is in every way superior to that variety."

Noticing the Gueii plum among the exhibits at the Industrial Exhibition at Toronto last month, we corresponded with the exhibitor to get his experience.

They were shown by Mr. J. K. Gordon, of Whitby, a gentleman who has carried off more prizes for plums than any other plum grower that we know of. He has collected over seventy varieties of plums in his orchard, and is a great enthusiast in their culture, and is constantly adding to the number. His experience with the Gueii, is not so favorable as Mr. Willard's, for in that district he has found it very subject to rot. Here is what he says: "In reply to your letter asking for my opinion of the Gueii plum, I beg to say that the tree grows to a fine size, and though rather long in coming into bearing, is fairly productive of medium to large fruit, and, though not a dessert, is a very fine plum for preserving with sugar. But with me it has one great fault, which utterly condemns it in my estimation, namely, it rots badly. Last year, though both my trees of it were well loaded, I did not pick from them one sound specimen, and this year, though the rot was not prevalent among my other varieties, I lost at least two-thirds of my crop of the Gueii, and my intention is, to graft it over with another variety in the spring."

It is hardly fair, however, to condemn so excellent a plum for this unfavorable experience reported from a single locality, and it would be well if other growers who have fruited this variety would report as fully as possible concerning it.

Among the growers along the Hudson River, this new variety is regarded as most valuable for market purposes.

In general, the Gueii plum may be described as follows: Fruit, large, deep bluish-purple covered with thick bloom; flesh, yellowish-green, coarse, sweet and pleasant; a great bearer; very early; the tree is hardy and a rapid grower; fruit ripens from the first to the middle of September.

DAHLIAS.—These flowers for autumn blooming, are receiving increased attention, and the single-flowered varieties are gaining rapidly in popularity as they become better known. They are easily cultivated, increase rapidly, and a stock once procured can be kept from year to year as long as desired. By starting the roots early in pots in the house they can be brought into flower before the middle of summer if that is desired. But it is a great point in their favor if they bloom late, when many kinds of flowers have passed away. The tall growing, the dwarf and the handsome single varieties, make a great stock to select from, and one has ample opportunity in them to indulge his fancy.—*Vick's Magazine.*

KEEPING GERANIUMS.—The old method of hanging geraniums by the roots can hardly be called a good one, as too many will die. The better plan is to trim pretty severely and set closely together in boxes; keep rather dry and re-pot in spring.—*Floral Instructor.*

NOTES FROM MAPLEHURST.—III.

PACKAGES.

THE question of the most suitable packages for our choicest fruits is a very important one and one that will never be fully settled, because we as growers are becoming more and more fastidious in our requirements, and our basket factories are constantly improving their appliances with a view of meeting our wishes. The patent cover made at Walkerville has already been illustrated in these columns. It works well, and the only objection to its use is its expense. Two cents is rather a high price to pay for a cover to put on a basket which is itself only worth three and a-half cents. The leno cover, which we have been using so constantly during the last ten years for almost every kind of fruit, costs about one cent per basket, which is enough money certainly in these days of low prices. It shows the fruit to good advantage, and, were it not for the piling of the baskets in our express cars, nothing more would be needed; but, until better arrangements for carrying our fruit are furnished, it will be necessary for growers to consider how best to protect their fruit from injury.

The tribow basket is becoming popular with growers at Winona. The illustration (Fig. 50), taken from a photograph, will give our readers a better idea of this basket than we would possibly do by a description of it. Tribow means simply three handles, and in this consists its peculiarity. The handle serves as a complete protection for the fruit. The baskets may be piled upon one another, as high as may be necessary, without injury to the fruit; and further, the handle will so separate layers of baskets from one another as to afford a free circulation of air, which is certainly an advantage in a long shipment. The same objection is made against the use of these baskets as against the protection cover, because the cost of the leno and the extra handle about equals that of the patent cover.

A two-handled basket has been lately invented at Grimsby with a bar across the top from one handle to the other. This would seem to answer the same purpose as the three handles and could, possibly, be made at a less expense.

Our own habit has been to use the ordinary baskets and to slip wooden covers over the leno for protection, upon which the address is neatly stencilled; but this is not an economical plan. A great deal of fruit is put up in small packages, which would be much better sold in larger bulk. Thus we find a great quantity of apples coming into the market to be sold in 12-quart baskets, instead of in barrels, and we also see many grapes going into the market in three and five pound baskets, instead of the fifteen and twenty pound baskets. Peaches and pears, too, are sometimes put up in six-quart baskets,

instead of the ordinary 12-quart size. Now there is only one excuse for very small packages, and that is, where the fruit is of extraordinary beauty or size, and therefore will command extraordinary prices. It is always better to put up ordinary fruit in ordinary packages, as there is less expense about packing and less trouble to the salesmen in handling them. Besides, it is very inconvenient for railway companies to handle large quantities of fruit in small baskets. No wonder the agents and trainmen become impatient and throw about the baskets in such a reckless fashion, or that the Grand Trunk Railway

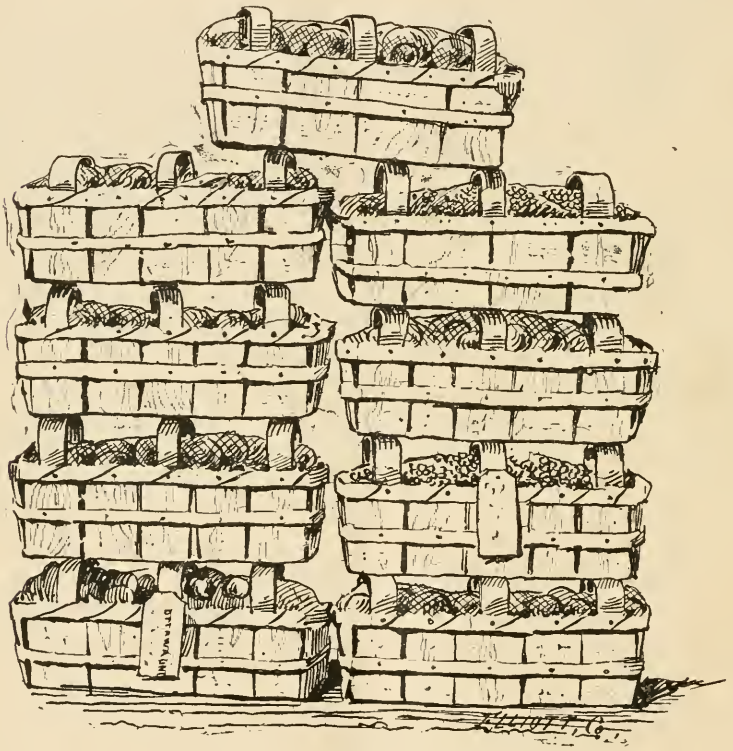

FIG. 50.—THE TRIBOW BASKET.

officials should have become impatient of delays and given an order, as they did the other morning, that the daily express trains were to stop no longer than was needful for the accommodation of passengers. Several hundred baskets of peaches were, in consequence of this order, left behind at Grimsby station, notwithstanding the angry faces of the many shippers who were waiting to see their fruit safely aboard.

One thing is certain, and that is, that the rapid growth of the fruit industry requires accommodations from the railway companies not yet thought of. Fruit

trains run on passenger time on the American roads, to their great cities, and why should we not have a similar consideration ?

GLUTTED MARKETS.

The glut of summer apples and early peaches during this season of 1891 has somewhat discouraged our high hopes with regard to the profits of growing them. Between two and three thousand baskets of magnificent Red Astrachans seemed prospectively to be a mine of wealth, but when beautiful fancy apples came to our Canadian cities in car loads from the Hudson River district and other fruit growing centres of the United States, our markets were so completely blocked that it was difficult to find a profitable sale for even extra fine stock.

Notwithstanding this, the Red Astrachan, in our opinion, cannot be surpassed as a summer market apple. If each specimen is gathered just at its highest state of perfection, surely no apple can surpass it for beauty, and, handling it in this way, we were able to dispose of the crop at fair prices, even during such an unfavorable season as this one.

The Niagara District Fruit Growers are helping the fruit business of Ontario by opening up trade with Winnipeg, and, through an arrangement with the Canadian Pacific Railway, have shipped car loads of summer apples and other stock to that city, where they are selling at remunerative prices. The great North-West may yet prove to be a fine market for our early fruits.

Good use may be made of the second-class grade of early apples, which are never fit for the market, in the way of food for stock. A few quarts of them may be cut in pieces and fed daily to each cow. She will relish them highly and her flow of milk will be much increased thereby. The horses, too, will enjoy them as an addition to the daily ration and will eat their other food with greater relish. The pigs which are shut up in small yards should by all means have a share, and if the sheep and hogs have the run of the orchard to pick up the fallen fruit—which is almost always unfit for sale—the result, in flesh, will be highly satisfactory.

What shall we say of the early peaches, such as Early Canada, Alexander, Hale's Early, etc., which, notwithstanding their fair exterior, never seem to ripen perfectly and so soon begin to decay ? No wonder the prices fell to forty cents a basket, a figure very little above that which was being paid us for extra fancy Red Astrachans. The lesson seems to be to plant no early peach in any quantity, unless it be the Early Rivers, which is truly a first-class peach and meets with much favor in our markets.

The Petite Marguerite Pear has borne with us this year for the first time and commends itself as worthy of some attention from growers. It is a delicious dessert pear of medium size, greenish yellow skin with brownish red cheek ; ripening about the end of August, just in advance of the Bartlett. The flesh is fine, melting, juicy and of the highest quality. Its color, however, is not the best to make it a fancy market pear.

PLAIN DITCHING.

Little success can be expected on most soils in growing small fruits, without proper drainage. A large plantation of Cuthbert raspberries, planted upon clay loam, has been an utter failure. The bushes have been stunted in growth and have borne very little fruit, and this of a small size, almost unfit for shipment. The soil seemed in every way to be rich and very suitable, for a plantation of larger fruits grows on it with much vigor, plums and apples being planted in a portion of the same field. The secret is evidently lack of drainage, for in those parts of the farm where this has been systematically attended to, the Cuthbert is a most decided success.

The grading of ditches and drains is a very important matter, and one which is often done too carelessly, resulting in the tiles being frequently filled with sand or other rubbish. Our custom of grading has been with the use of a spirit level, laid upon stout boards along the bottom ; but a much better plan is given in *Farm and Home*. It consists in setting stakes four feet apart, along the line where the

Fig. 51.—PLAN FOR EXACT GRADING.

drain is to be laid ; laths are tacked across from stake to stake, as here illustrated. Across the top of each a cord is run, and the whole arrangement so placed that the line is the exact grade which is desired at the bottom of the drain. When this is done, any one can dig the ditch and grade it, using a rod long enough to reach from the line to the bottom of the desired ditch.

HOW TO GROW FRUIT.—A novice, anxious to learn fruit raising, would do well not to select less than four, nor more than ten acres, of his best corn land. It ought to be heavy rather than light, well drained, on reasonably high, airy land, but not exposed to sweeping winds. On this plant apple trees fifty feet apart. Peach, plum, pear, and cherry trees can be planted in rows intersecting the above each way, leaving the completely planted orchard in rows twenty-five feet apart. Plant but few varieties and only those doing well under similar conditions. Experiment with no new or wonderful things. Keep to the beaten paths. Devote this land to fruit exclusively. Keep all domestic animals, except poultry off of it. Manure it every year. Plow it at least once and cultivate it several times each year. Allow no grass or grain to be raised in the orchard, except corn while it is young. Prune carefully every year and keep up a vigorous fight againt insects and vermin.—P. W. KING, *Greene County, N. Y.*

STONE FRUITS.

"STONE Fruits and their Propagation," is the subject of an interesting paper read before the Iowa State Horticultural Society, by Prof. J. L. Budd, of Iowa, which appears in its transactions for 1890. In speaking of the varieties of cherries which succeed in Iowa, he says that in the southern half of the State the varieties which have given satisfaction during the last ten years are the *Wragg*, *Ostheim Weichel*, and *Montmorency Ordinaire*. Of the dwarf Russians which have been tested, he says that the *Shubianka*, on hardy roots and on dry soil, has been successful as far north as the 44th parallel. It belongs to the Vladimir family, and grows in bush form. It bears well at Ames, and he believes that it will have the greatest value. For dessert, or canning, it is better than the English Morello or Wragg.

In speaking of the propagation of the cherry, he does not favor the use of the *Mahaleb* stock, which is largely employed by our Eastern nurserymen, in the budding of almost every catalogued variety. It is, undoubtedly, the most effective dwarfing stock, but on account of its being a distinct species, differing as much from the cultivated cherry in wood, cell-structure, and the habit of flowering as the common apple from the wild crab, or the pear from the thorn, the two woods never make any real union of cells. Some varieties may make very durable trees, if deeply set, so that the roots will finally be emitted from the scion, but nearly all colored juice varieties make such feeble union as to starve the roots within a few years.

The Mahaleb is a small wild tree found on sandy knolls and dry rocks over west Europe, with white bark, hard, close-grained, dark-colored wood; small, black, bitter fruit, and flowering in short racemes. The wood, the leaves, the flowers and fruit are so powerfully scented that it is known everywhere as the "Perfumed cherry."

The *Mazzard* stocks of commerce are from the wild red cherry of Europe, which is nearly allied to, and supposed to be the original form, of many of our cultivated varieties, and, in consequence, many of our cultivated varieties unite well with it when grafted or budded upon it.

The Morello stocks he commends because nearly all hardy varieties, so far as known, unite perfectly with its wood; indeed, so favorably is he impressed with this stock, that he has decided to employ it largely for his experimental orchard.

The *Sand Cherry* (Prunus pumila) of the North-West, under cultivation grows, on rich soil, with sufficient rapidity to make it a suitable stock for budding. It is the hardiest of cherries and is very closely related to our garden varieties. He commends this for trial.

Speaking of plums, Mr. Budd writes somewhat favorably of *Prunus Simoni*,

or Simon's Plum. He thinks it best planted with plums because of its rather scant supply of pollen. In the past season its fruit was remarkably good in quality for any use. He advises that it should be grown with very low stems and that the tops should be annually cut back one-third of the preceding year's growth.

Of the apricots he commends the *Shense* as very promising. It was grown from a pit sent him by a missionary in Mongolia, Asia. The tree is a strong and handsome grower, and is known to a few in Nebraska as "Acme." Of the southern Russian apricots he has ceased to propagate a single variety. All that he has fruited are small in size, low quality and the trees are not hardy. He would bud the Shense on our native *Prunus Americana*, as foreign stock will bring discredit upon it or any other apricot.

Some varieties of peaches imported by the college from north-west China and Asia have been fruited on the college grounds, and, in his opinion, they can be profitably grown upon favorable soil at least 40 miles north of the regular peach belt across the continent. Some of the varieties are a fair size and excellent quality.

MOST folks fail to let grapes ripen sufficiently. They want to pick and eat as soon as the color changes. The perfection of flavor and sweetness are only obtained by hanging long on the vines. I have found that grapes pruned in the spring after the sap starts, ripen earlier than if pruned in the fall.—E. N. SPAULDING, *Hartford County Ct.*

BIG PROFITS FOR A SMALL INVESTMENT.—A fruit dealer once said that he had rather send his men into the orchard and pack the fruit himself, paying the same price, than have the farmers do it. This does not speak well for the way farmers pack their fruit and ship it to market. There is no reason why this should be so, and if a few practical facts are kept in mind the fruit grower might get the money extra for fruit. Have the fruit equal the sample is one thing to keep in mind. Also remember that windfalls, or fruit that has been bruised in any way has no part with the high grades. Grading is everything in selling fruit and gives big returns for the extra pains. One farmer recently gave his experience. He had 8 bbls. of Baldwins. Of these he sorted four, making three bbls. of higher grade and one bbl. of a lower grade. These were marked lot one. The other four barrels were marked lot two. Four more barrels were bought to be delivered to the depot of a dealer in fruit. All of this fruit was sent to a commission merchant with instructions to sell as if they were samples of car lots. The first lot averaged him $2.20, lot two, of four bbls., $1.85 and lot three of four barrels, $1.50. This is a difference of 35c. per bbl. between lot one and two, and of 70c. per bbl. between lot one and three. Can a more forcible argument be given in favor of the greatest care and thought in preparing fruit and shipping it to market in first-class condition.

BONES AS A FERTILIZER.

SIR,—Could you give me any information in your valuable book how to dissolve bones to make them fit for a fertilizer?

CHAS. MITCHELL, *Port Elgin, Ont.*

UR correspondent has asked a very sensible question. Old bones contain very valuable fertilizing elements, and many farmers habitually allow them to waste about their premises without seeming to have any idea of their value. As we have frequently mentioned in these pages, there are three essential elements required for the growth of plants, and these are, nitrogen, phosphoric acid and potash. Now one source of supply of the phosphoric acid is in bone meal. True, the same element is furnished very cheaply in the Canadian phosphate rock, known to geologists as apatite, of which there are large quarries in the country between Kingston and the Ottawa River. These are being worked most extensively, and the product shipped far and wide, much of it being exported to the Old Country. This ground rock can be purchased for about one cent a pound, and is a cheap and valuable fertilizer for lands that are lacking in this particular element. Fresh ground bones contain about 25 per cent. of their own dry weight of phosphoric acid, and this is worth about five cents a pound. Bone meal, therefore, is worth about one and one-half cents a pound, on account of this particular ingredient. But, besides this, they also contain about three or four per cent. of nitrogen.

Of the value, therefore, of old bones, there is no question, but the great problem is how easiest to make them available for use as a fertilizer; for, if applied to the ground whole, many years should elapse before they would be sufficiently decayed for the plants to make use of the phosphoric acid which they contain. One method is by reducing them with sulphuric acid, but this need not be described here as it is both expensive and dangerous, for unless the acid is handled with the greatest care, one's clothes are sure to be burned and the operator may perhaps receive personal injury also.

The simplest way of reducing bones to powder, is probably by burning and then crushing. This is one which any farmer can operate with little expense, except the time and labor necessary. The bones should be piled with enough dry waste wood to burn them perfectly white. Bones being greasy will make a very hot fire of themselves, so that it will not be necessary to use more than half their bulk of dry soft wood in order to accomplish this. The white ashes are then removed to a plank floor and pounded until they are quite fine. The pounder may be made of a block of wood, sawed square at the ends, to which a handle is attached. This meal can then be sown upon the land or used in connection with potash and nitrate of ammonia, at the rate of four parts to one each of the potash and nitrate, in making a complete fertilizer.

Mr. T. Greiner, who is a constant contributor to the *Farm and Fireside* on agricultural chemistry under the *nom de plume* of Joseph, says, that his method has been to make a large rubbish heap in early spring in some out of the way place, and when this is set on fire he places upon it all the bone accumulations of the year. The ashes which result are then all carefully applied to the land, the value of the wood ashes being largely increased by the added phosphoric acid from the bones which have been consumed; but the phosphoric acid will be better economized by the previous method than by allowing the bones to burn entirely to ashes.

A recipe for fermenting whole bones with horse manure, is described in *Storer's Agriculture* as follows: Soak the bones in water for several days, then pack them in a dung-pit layer with horse manure, taking care to moisten each layer with the water in which the bones have soaked, and with other water as well. Each layer of bone should be about three inches thick, and the layers of horse manure twelve inches thick. The heap is topped with loam. At the end of ten months the bones will be reduced and the mixture fit for use.

Another plan which is very simple is to decompose them by the use of wood ashes. They are first broken up as fine as possible and put in alternate layers with unleached wood ashes, and put in a barrel or hogshead to decay as quickly as possible. The mixture should be kept moistened during several months until the bones have become soft and can be easily broken up very fine. This will probably require six months or a year.

One of the simplest ways perhaps to deal with old bones, especially where only a small quantity is to be treated, is to boil them in a strong lye, either made from wood ashes or by dissolving in water as much caustic potash as the water will hold at the boiling point. This will accomplish the work very speedily. When they are dissolved the mixture will need to be extended many times with dry muck or plaster before it can be applied to the soil. The potash added is itself a very valuable fertilizer.

POWDERY MILDEW OF CUCUMBER.—The powdery mildew of the cucumber is due to the work of a fungus. It attacks the leaves, on the upper surfaces of which it forms at first rounded spots, which appear like blotches of a white powder. These spots gradually enlarge and become confluent, until the leaf is practically covered. The attacked parts of the leaf soon turn yellow, and finally become dead and dry. Under favorable circumstances the disease spreads quite rapidly and is very destructive. Prof. Bailey and Dr. Fisher have found that the fungus may be kept in check by frequent spraying with a solution of liver of sulphur (sulphide of potassium) in water. An ounce of the drug to three gallons of water is strong enough, and will not injure the foliage. A house in which this disease has been troublesome should be thoroughly cleaned and fumigated before the next season's crop is started.—*Farm and Fireside.*

THINNING FRUIT.

THE Horticultural editor of the *Country Gentlemen*, appears to have been making some experiments in thinning fruit, and is convinced that it is of extreme importance. Most fruit growers are too hurried to spend the time needed, but, perhaps, no investment would pay better. Figures 52A and 52B, are drawings which he gives, the former showing the average peach taken from one side of a peach tree which had not been thinned, and where the fruit was very crowded; the latter, one growing on the side which had been frequently and well thinned. Both illustrations show the fruit two-thirds the actual diameter, the smaller specimens averaging 1½ inches in diameter, and the larger 2½ inches. He emphasizes an important point, not often noted in speaking of the advantages of thinning, viz.: the difference in flavor, which is still more worthy of consideration than the size. The objection given to thinning fruit is the quantity wasted, but strange to say, the quantity of fruit harvested from the half of the tree that was thinned until the fruit was left three or four inches apart, was equal to that from the half on which the fruit remained in a very crowded state.

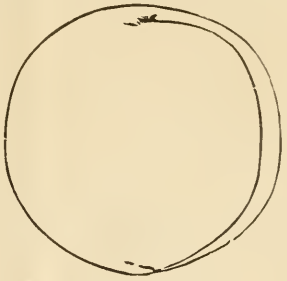

FIG. 52.—A.

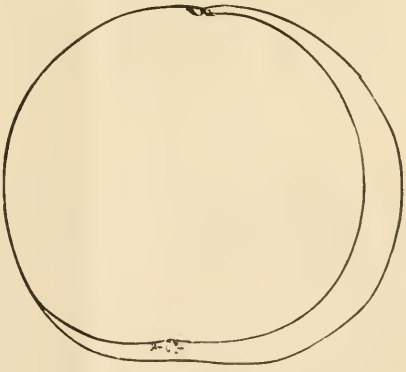

FIG. 52.—B.

Mr. J. H. Hale, of Massachusetts, thinned his young crop early in July, when the fruit was only about three-quarters of an inch in diameter. He did the work my hand, leaving none nearer than four inches, and the larger varieties farther apart. To do this required four out of every five. The trees so treated yielded the same number of baskets as those not thinned, but the fruit was so improved as to size and quality as to sell for more than double the price. The labor of this is no small undertaking, and this is what deters so many of us from doing it in a systematic manner.

Mr. Hale found that every dollar paid out for this work, returned to him five in direct profit.

IF we were about selecting a dozen kinds of grapes for what is usually designated an amateur's vineyard, we should include the following: Brighton, Delaware, Moore's Early, Vergennes, Worden, Jefferson, El Dorado, Elvira, Empire State, Hayes and Ulster.—*R. N. Y.*

LOSS OF VALUE OF MANURE BY EXPOSURE DURING SUMMER.

SOME experiments made at Cornell, show very plainly that manure rapidly loses its value by exposure. A pile of horse manure was put in a place exposed to the weather and where the drainage was so good that all the water not absorbed by the manure ran through and off at once. It remained exposed from April 25th, to September 22nd, at which time it was carefully scraped up, weighed and a sample taken for analysis.

It was found that the 4,000 had shrunk to 1,730 pounds during the six months, and analysis showed that this 1,730 was less valuable, pound for pound, than the original lot of manure. It had not only lost by leaching, but by the heating or "fire fanging" during periods of dry weather and, the value of the pile of 4,000 pounds had shrunk from $5.60 to $2.12—a loss of 62 per cent.

In summing up the results of this experiment, Director Robert says: "It seems safe to say that under the ordinary conditions of piling and exposure, the loss of fertilizing materials during the course of the summer is not likely to be much below fifty per cent. of the original value of the mauure."

Further experiments showed that the liquid manure from a cow is worth as much per day as the solid manure, and that the combined value of the two is nearly ten cents per day, if valued at the same rate as commercial fertilizers; that from a horse at seven cents, that from a sheep at one and one-half cent, and that from a hog at one-half cent for liberally fed, thrifty shoats of medium size.

Director Roberts is careful to explain that these values will have to be modified to suit individual circumstances. What he means is that if farmers can afford to buy commercial fertilizers at current prices, then the manures of the farm are worth the prices given.

To pick up windfalls for vinegar may not pay in product, but it will check the breeding of fruit worms. If stock be turned into the orchard for the purpose every tree should be protected if it is young enough to be injured. Remember, it costs much less to care for and preserve an orchard than to plant and rear one.

ON many a small place apple trees are planted for ornament as well as for fruit. Let us recommend for this double purpose the Gravenstein. Shapely, a good grower, the fruit is large and excellent and for cooking it has no superior. As a flowering tree it is superb, being loaded with wreaths of choice, large flowers of a delicate white and highly perfumed. If one has room for but a single tree this variety should be planted.

BLACK ROT OF THE TOMATO.

SIR,—I send you a couple of tomatoes affected with the black rot, which seems to have affected all varieties in this section. I would be obliged if you can give a cause and remedy for it. It affects those upon the ground as well as those suspended. I would be glad to know, too, if the sound portions of those affected would be injurious to those eating them.
J. G. FITZGIBBON, *Norwood.*

The specimens of diseased tomatoes sent by Mr. FitzGibbon present an appearance only too familiar. The tomato rot has been wide-spread during the last five years, not only throughout Canada, but also throughout the United States. Some growers report that as much as one-third of their crop has been destroyed by it.

The cause of this rot is very difficult to explain, but it is a fungus growth which first affects the tomato at the apex and gradually spreads over a large portion of the fruit. (See Fig. 53.) The parts affected soon harden and the whole fruit becomes dried and shriveled, rendering it unfit for market. So far as we know there is nothing injurious to the health in the sound portions of those tomatoes which are slightly affected.

Prof. Bailey is of the opinion that the tomato rot is made worse by the abundant use of stable manure, and the general opinion is that some varieties

FIG. 53.—TOMATO AFFECTED WITH ROT.

are more subject to it than others. Thus the Acme and the Mikado are very badly subject to it, while the Perfection, Paragon and Trophy are not so easily affected.

To scientists the fungus is known as Macrosporium tomato, and consists of a dark-colored mycelium and vegetative system, the growing tubes of which can be readily traced to the cells of the sound tissue of the tomato (see Fig. 54 *d*); and of spores, which are borne on the ends of the branches, called hyphæ, all of which are plainly represented in Fig. 54 *a* and *b*. These are at first dark brown, but at length turn olive-black. When these spores come in contact with either ripe or green fruit they germinate rapidly under favorable circumstances, such as

heat and moisture, and send out slender tubes, as shown at *c* in Fig 54. These spores live through the winter in the shriveled fruit and in old leaves and stems.

Although a great many methods of combatting and destroying this fungus have been tried, yet, so far, none have been proved reliable. Certainly the trouble may be lessened considerably by carefully burning the old vines as well as the old and decayed fruit, which so often are allowed to lie upon the ground through the winter, and thus preserve the spores until another season to continue their destructive work. Other fertilizers than barn manure should be employed; and we would recommend our readers to experiment with the following fungi-

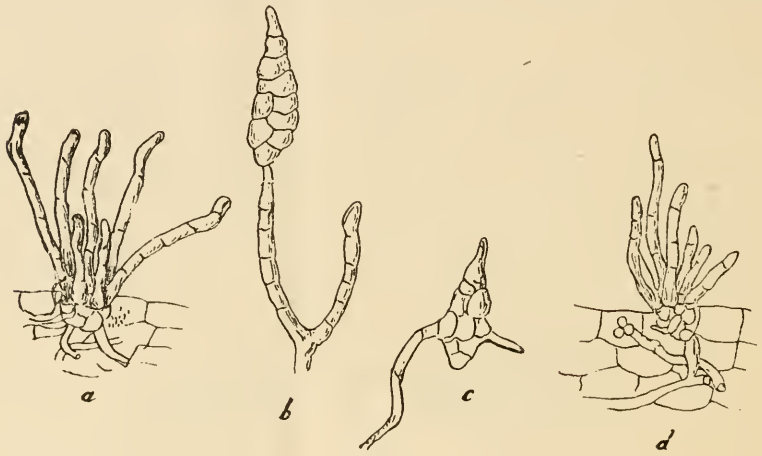

FIG. 54.—FUNGUS CAUSING TOMATO ROT.

cide, which has been recommended by the United States Department of Agriculture: One-half an ounce of sulphuret potassium, dissolved in a gallon of water and sprayed upon the vines so as to thoroughly wet all the fruit. Apply first when the fruit is about half green and repeat at intervals of ten days till the fruit begins to color. For the drawings used in this article, and much of the information, we are indebted to the Report of the U. S. Department of Agriculture for 1888.

EARLY GRAPES FOR MARKET USE.—*Popular Gardening* says there is no better first early grape for market or table than the Worden, unless the newer Moyer, or Green Mountain, should prove such. Moore's Early is not productive enough. The Ives has been largely grown for early market, but now has an unsavory reputation. It colors early but ripens late, and when fully ripe is really a good grape. But as an early market sort it is a fraud, and one shipper of Ives "has done more damage to grape growers, by restricting sales and consumption, than ten shippers of really good later grapes have been able to repair." Plant the Worden and let the Ives alone.

DANGER OF COPPER.

PROF. GERALD McCARTHY, of the North Carolina Experiment Station, writes as follows to one of that State's papers: In the warfare against the rapidly increasing number of disease-producing parasites, the fungicide most commonly employed in this country is the Bordeaux mixture, which, as commonly made, contains six pounds of copper sulphate to each 22 gallons. To spray one acre of grape vines once, takes about sixteen gallons of this mixture and usually six treatments are required for each season. This gives a total of about 400 gallons per acre, containing about 108 pounds of copper sulphate. All of this copper eventually finds its way into the soil. Copper salts are a deadly poison to all absorptive plants. Is there not danger that the accumulation of this substance in the soil of our gardens and orchards, if persisted in for a series of years, may eventually affect the fertility of the soil? There is very great danger. And let it be understood that when once the soil is sterilized by this poison, not all the guano on the coast of Peru can ever restore it to its former state, or make it fit to bear one blade of grass.

The possible danger of such poisons has already occasioned considerable alarm in Europe. It came up for discussion at the last meeting of the German Association of Naturalists. It was shown that copper sulphate in the soil soon becomes copper oxide, which is practically insoluble and remains in the upper stratum of the soil. The sulphuric acid in the copper sulphate combines with the potash and lime in the soil and with them forms more or less soluble compounds which are washed into the drains, or so far below the reach of most plants as to be practically lost. Its deleterious action is therefore two-fold: it destroys the young roots of plants and causes the useful potash and lime in the soil to leach away. When lime is added to the copper before it is sprayed, the baneful effect of the latter upon the potash and lime in the soil is largely prevented, but its evil effect upon the growing plant-roots still remains. The horticulturist must therefore bear in mind that the fungicides he uses are by no means friends to be depended on without limit. They are necessary evils, to be used with caution and the greatest economy. By hygienic precautions the amount of copper salts used can be greatly decreased.

GRAPE JUICE.—Use thoroughly ripe and fresh Concord or Isabella grapes. Allow one quart of water to three quarts of grapes freed from the stems. Let it come slowly to a boil, and when the whole mass is boiling hot, strain the juice through a cheese cloth, then return the liquor to the fire and as soon as at a boiling point again bottle and seal tightly. The less the fruit is cooked, the brighter will be the color and the better the natural flavor of the grape will be retained. It must be at the boiling point when sealed. A little sugar may be used if preferred. Keep in a cool place.

FRUIT EVAPORATOR.

IT is built of wood. All the frame required is the upright, 2 by 2-inch posts and the 2 by 3-inch horizontal drawer rests. The drawer rests are placed flatwise and between the posts, rabbeted one half inch on each inhalation of air. The end drawers are 4 inches deep and 5 feet long, and are used to finish on. Have four extra drawers, and have some extra front pieces to put in and close up the openings when the drawers are out. The sheet-iron fenders, A B, extend the whole length, to distribute the hot and cold air. The cold air enters the ventilators below A, and is divided by B. The arch C is sheet-

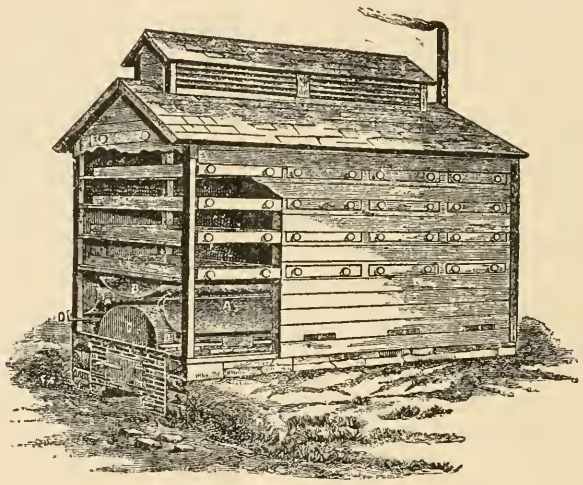

FIG. 53.—FRUIT EVAPORATOR.

iron, with a two inch flange, resting on the wall of the furnace, which is 2 feet high and 2 feet wide, laid in mortar. The top course of brick is laid in mortar, on the flange, to prevent the escape of smoke. The building is 10½ feet long, 7 feet high and 4 feet wide. D D are connecting rods attached to the ventilators. The furnace can be built below the surface on sloping ground. The amount of heat is great, and the thing to be observed closely is to admit plenty of cold air through the ventilators. The illustration, without going into details, gives enough to enable a good workman to construct a cheap and good evaporator that will do more than twice the work of some of the high-priced machines.—J. W. BEACH, in *Farm and Fireside.*

EVAPORATING FRUIT.

THE orchardist must be prepared to utilize the greatest amount of fruit possible and place it upon the market in salable form if it cannot be sold in its fresh state. I have found evaporating the best way of handling second quality apples, and in most years all early fall fruit. Fruit should be evaporated before it becomes over-ripe and soft. The expense of preparing apples for evaporating depends greatly on the size and condition of the fruit, whether badly bruised and soft or not. The fruit I evaporate is nearly all grafted fruit and averages 6 lbs. to the bushel. A lot of natural fruit will average only about 4 lbs. to the bushel. Baldwins and Greenings 6 to 7, Russets, 8. My average expense for evaporating and boxing has been 3½c. per lb. after getting fitted up, or 20c. per bush. About 10c. is an average price at wholesale for evaporated apple, one year with another. There is usually too great a difference between the wholesale and retail prices, the retail being nearly double the wholesale.

I use an American evaporator intended for bleaching the apple in the evaporator, which is wrong, as it necessitates having it in the fumes of the sulphur all the time it is drying. The apple should be bleached for five to eight minutes in a separate place made for it, as soon as it is cut and spread on the trays, and then put immediately into the evaporator. Treated thus there will be no complaint of smell or taste of sulphur in the apple. Perhaps the expense of evaporating in some localities would be different from mine, from prices of labor, fuel, etc. I employ five persons, (usually females) to prepare the apples at 60c. per day each, and one man to attend the evaporator at $1. This help averages a trifle over 150 lbs. per day. Fuel (wood) costs $3, prepared. With apples that take a longer time to dry, it is necessary to remove a part to keep the help employed. In this way it is necessary to have extra trays on which to set aside partly-dried apples for attention later. Three trays can be emptied on to one. This is better than to put it into boxes to be spread on trays again, and the apple looks better. A person must not expect to get rich rapidly evaporating apples, although it pays well in some seasons, but when one has a large lot of apples that will hardly pay for marketing, it is quite a consolation to know that he can use them independently of the market, and get a fair profit from them.

I consider it a safe rule to evaporate all apples that are not worth, at my home, more than $1 per barrel, without barrel. If one is buying apples to evaporate he should be cautious about getting a great quantity ahead of the parer. One week is as long as they should be kept, unless they are all hard, late-keeping varieties. I am raising a great quantity of apples and should think I was losing a large share of my profits without an evaporator.

Some varieties are at times very scabby which unfits them for keeping well

and injures them for market. I find it best to evaporate all such, unless apples are scarce and dear. I make three qualities of my apples when picking and always evaporate No. 3. No. 2 are quite good but if the prospect is not satisfactory for a good market, I evaporate them also, after getting through with No. 3. No. 1 are extra and bring an extra price. I am satisfied with this way of sorting them.—P. WHITTIER, Franklin County, Me., in *Farm and Home.*

A POINT IN RASPBERRY CULTURE.—Cuthbert raspberries branch near the bottom because they are headed in early in the season, or are cut back too low in the spring. They will branch low if the canes are too far apart. If planted close, say 5 x 7 ft. in rows, or 5 x 5 in hills, they will run up without branching. Then by heading in to 4 ft. in the spring, most of the fruit will be borne on the laterals toward the top of the canes. Sometimes the frost injures the ends of the canes and extreme buds fail to grow, but those near the ground grow rapidly and produce fine fruit, but it is generally too late to be profitable.—S. T. MAYNARD, *Massachusetts Experiment Station.*

PANSIES are the last flowers that bloom out-of-doors—they were the first. Upon the dining table and in the parlor we have pansies, with a spray or so of wild fern, and they are as bright and jolly as ever. Pansies in spring, summer and fall—all the while. Few flowers can talk with you, joke with you, wink at you as can pansies. And then there are serious pansies that will keep you company when you are sad. The rose is the queen of flowers, surely; but the pansy is the flower that the queen would choose, could she speak.—*R. N. Y.*

WILD BLACK CHERRY.—If we were asked the question: which is the coming timber tree? we would at once answer, the Wild Black Cherry. Our reasons for believing this are as follows:

1st.—It grows to an immense size, often 70 feet in height and 4 feet in diameter.

2nd.—Its timber stands next to Mahogany for cabinet purposes, as it is a very dark red and takes a very fine polish. It is often substituted for that valuable wood in veneering.

3rd.—It makes a rapid growth, growing at least a third faster than the Walnut, and is entirely free from injury by such enemies as insects, borers and rabbits. The young trees transplant as easily as Cottonwood.

4th.—Its fruit is used for pies and dried for winter use. It is also used in the manufacture of wine.

5th.—Its bark makes one of the most valuable tonics known.

6th.—The tree is beautiful. Its leaves are a dark, livid green, its flowers pure white and its fruit a rich black.

With all these qualities who can say that it is not the coming tree and I think all will unite in saying that it should be generally planted.

The Garden and Lawn.

TWO NEW TULIPS.

BY the courtesy of Mr. A. Blanc, of Philadelphia, we give our readers representations of two very curious novelties. We can say nothing concerning them ourselves, either pro. or con., for we have never seen the plants in flower, and we therefore, simply give Mr. Blanc's description of them.

Tulipa Greigi (Royal tulip) is perhaps the most showy and desirable of all tulips. It blooms early: it has large goblet-shaped flowers, being generally of a vivid scarlet color, but there are also yellow and purple-colored flowers. The bulbs are hardy, and even when the leaves are half grown they will endure a temperature of zero without protection. The plants are vigorous, attaining a height of from nine to fifteen inches, and bearing flowers from twelve to eighteen inches in circumference. A number of leaves have undulating margins, the whole of the upper surface being boldly blotched with purple and chocolate-brown. It is the most expensive of all tulips, and so beautiful as to

FIG. 54.—TULIPA GREIGI, OR ROYAL TULIP.

well deserve the name of Royal Tulip. It is suitable as an ornamental plant for the house.

Tulipa Fulgens.—This is commonly called Fiery Tulip, and is one of the largest flowering varieties, often measuring twenty inches in circumference; color of a brilliant scarlet with yellow centre; very showy.

FIG. 55.—TULIPA FULGENS, OR FIERY TULIP.

FALL SOWING OF LAWNS.—We believe in it. An extended experience in lawn making convinces us that there is no better time than this. The Grasses that are suitable for lawns are not unlike Wheat and Rye that are sown in the fall, in the respect that they are perfectly hardy and thrive under the coolness and moisture of autumn and spring weather in a young state better than they do in hot weather. With sowing lawns in September the young grass has the benefit of twice the length of cool, moist weather that spring sowings can receive. Under ordinary success there may be a well established lawn by next July from seed now put in. To prepare for seeding is no difficult matter, provided the general grade and the nature of the soil are about right. Spade up deeply, going down two lengths with the spade, mix fine manure with the overturned soil somewhat freely; see that all sods are well inverted, finish the surface evenly and finely with a rake; a rain, to settle it before sowing, is of advantage. Sow evenly, in calm weather if possible, just before a rain, raking lightly after the sowing. For seed trust to a reliable dealer who handles the best Grasses, either separate or in mixture, for the purpose. Even to procure from a distance is no great disadvantage, for grass-seed is light, with transportation charges to correspond.—*Pop. Gar.*

BULBS FOR WINTER AND SPRING BLOOMING.

OUR lady readers will find much to interest them in the following article from the *Farm and Garden*.

A good list of Dutch bulbs for spring and summer blooming should include the following: Hyacinths, Tulips, Narcissus, Crocus, Polyanthus Narcissus, Anemones, Crown Imperial, Iris, Lilies, Ranunculus, Snowdrops, and Scillas. These are all to be had in many varieties, and are perfectly hardy. The greenhouse varieties are very numerous also, and of these we will speak later.

Soil.—The proper compost for almost all the sorts enumerated above, and many other bulbs should consist of one-third sand, one-third well rotted cow manure, and one-third good garden mould. At the same time it should be remembered that good success may be obtained with almost any ordinary garden soil.

Time of Planting.—All hardy bulbs should be planted from the end of September until December. If the bulbs remain sound, and the ground is not frozen, they may be set out at any time later. If the bulbs are intended for blooming in pots, they should be planted during the months of October and November, in pots of moderate size. They may be left in the open air, covered

FIG. 56.—SHOWING DEPTH OF PLANTING BULBS.

with a few inches of tan or soil, until the soil begins to freeze, when they must be brought into the house: whether in a room or cellar will be immaterial, providing it is a dark place. Occasionally they should be watered moderately, just to keep the soil damp. Gradually expose them as much as possible to the sun, air and light; if not, the leaves will become long and yellow.

Depth and Distance of Planting.—Large Lilies, Hyacinths and Pæonies should be planted to the depth of four inches. Crown Imperials and Polyanthus Narcissus, five inches. Tulips, Double Narcissus, Jonquils and Colchicums, three inches. Crocus, Bulbous Iris, Small Fritillarias, Hardy Gladiolus, two inches. Ranunculus and Anemones, one inch. The depth should always be measured from the top of the bulb. When planting in rows, they should be about ten

inches apart; and the bulbs may be placed at a distance of from four to eight inches apart in the rows, according to their size. As soon as cold, freezing weather approaches, give the bed a good covering of leaves, hay, old manure, or tan to prevent the frost from penetrating to the bulbs. As soon as the shoots push through it in the early spring, this covering should be removed, taking particular are that the shoots are not injured. The earth may be slightly stirred with a garden fork, so as to make the bed look neat and tidy.

The Japanese Narcissus or Chinese Lily is a new bulb. In China or Japan, no family, however exalted or menial their station, would think of being without it during their blooming season, and it is said that they have now succeeded in blooming it all the year round.

This craze is not only accounted for by their beauty and fragrance or ease of cultivation, but also because they are regarded as a symbol of good luck. The Japs believe that as long as their lily is in bloom, no bad luck can overcome them. Japanese ladies will have them in their parlor while they play their musical instruments. They may be grown in an ornamental bowl, dish, or large saucer, half filled with clean, white pebbles. Place the bulb on these, and fill the bowl or dish with water half-way up the bulb. If placed in a warm position, roots will form at once, leaves will be produced, and in a very short while several flower-spikes will open their beautiful white fragrant blooms.

HOUSE PLANTS IN OCTOBER.—*Windows.*—We don't often build windows for plants, but rather get plants to suit our windows. If practicable, have your windows to open at the top as well as at the bottom. Get the brackets screwed into their places. Have the plant-stands in good repair, nicely painted and all ready. Have a bit of oil cloth for the floor under the plant stands, or along side the windows where your plants are, as now and again you can't help spilling some water, and it is easier to wipe up the water off the oil-cloth than off the carpet. Don't bring your plants into your windows as long as you can safely have them out-of-doors. We generally have some beautiful bright weather in October, cool at night, but warm in the day-time. Let the plants have the benefit of the warm weather, but cover them up or bring them in upon the piazza in the event of cold or wet weather. Toward the end of the month it may be well to house most of your tender plants.

The Piazza.—The piazza is a capital place for pot plants in October. All plants that are established in their pots can enjoy the south side, and those newly potted the shady side. If the plants are standing outside on the walks, in the event of frost, or a windy or wet storm, in a few minutes we can lift them on to the piazza where they will be safe, or if need be, by the aid of some old newspapers or a sheet or two we can make them doubly secure.—WM. FALCONER in *R. N. Y.*

MAKING GARDEN IN THE FALL.

IT seems to be a hard matter for the average amateur to set himself about garden making at any other than in the spring. As a result many flowers, and some vegetables and fruits, that succeed best for autumn planting are either not raised at all or else it is done to poor advantage.

The *hardy Dutch bulbs*, Hyacinths, Tulips, etc., are one class that are much slighted in this respect. To us it is clear that fine collections of these flowers would be much more common could they be planted in the spring along with most anything else instead of being planted in the fall. From September until cold weather is the time to plant them.

Certain kinds of annuals are better for fall than for spring sowing. In nature we may observe that summer and autumn sowing is the invariable rule; seeds drop to earth as they ripen, and spring forth in the same fall or early next spring. All florists, we believe, now sow *Candytuft* and some other kinds in the fall for their first crop of outdoor spring bloom from these.

For a *list of annuals* suitable for fall sowing we would name the following: Alyssum Maritimum, Bartonia Aurea, Calandrinas, Candytufts, Clarkias, Collinsias, Erisymum, Forget-me-nots, Gilias, Godetias, Nemophilas, Saponarias, Silenes, Virginia Stocks, Pansies and Sweet Peas.

Of these all but the sweet peas should be sown between the middle of August and the middle of September. The peas ought not to go in before November, the idea being not to have them germinate until early next spring. Still, we cannot recommend the sowing of annuals in every kind of soil in the fall; the soil for them must be light and well-drained. The chief advantage of fall sowing is that the plants grow stronger, root deeper, and flower earlier and longer than those from spring-sown seed.

In the line of vegetables, spinach, and borecole or kale for an early spring crop are the better for being sown in September. To sow these now in good soil is to secure fine early spring greens that should prove most acceptable on any table. Cabbage, cauliflower and lettuce may also be sown for plants to be kept through the winter in cold frames for an early crop next year.—*Popular Gardening.*

WINTER STORAGE OF ONIONS.—Only bulbs that are perfectly cured, are fit for winter or spring use. Never attempt to keep onions that are not capped over perfectly, and are not entirely dormant, both at top and root part. If they are thus perfect, it will not be a hard task to keep them over the winter, provided we have a dry, cool and airy room, where we can keep them from freezing. Never store them in a large bulk together. Onions will also keep quite well when frozen. Store on the floor of some outbuilding, say fifteen inches deep, and as far away from the wall. When frozen, cover with a two-foot layer of hay; but do not handle them.—T. Greiner, in *Farm and Fireside.*

CHESTNUTS.

CULTURE AND SOIL REQUIRED FOR THE GROWTH OF THE CHESTNUT—USES OF THE CHESTNUT.

N a bulletin recently published by the Pennsylvania Experiment Station (located at State College P. O., Centre Co.), Prof. William A. Buckhout gives some valuable information relative to the culture of the chestnut.

The chestnut cannot be grown successfully on heavy clays, wet soils or limestone land. It prefers loose, sandy soils, or such as has been derived from the decomposition of slates or shales. In Ohio it is found native on the sand ridges, which border on the lake shore, and on the shaly hillside of some of the hill counties in the southern portion of the State, but never on the limestones which cover the western and south western portions of the State, nor can it be cultivated in this region with any prospect of success.

The chestnut grows readily from the seed, but great care must be exercised not to permit the nuts to become dry. To accomplish this they must be planted as soon as gathered, or else must be kept in moist sand until ready to plant. If possible, the nuts should be planted where the tree is to stand, as the chestnut has a long tap-root which renders transplanting difficult.

Our native chestnut is practically of but one variety; but the European chestnut is not only much larger and finer than the American, but has produced, under cultivation, a number of varieties, some of which are highly esteemed for the superior quality of their fruit. The trees do not grow so large as the American and come into bearing more quickly; the latter does not usually fruit until ten or twelve years old.

Within the past few years species from Japan have been introduced into the United States. Unfortunately they do not appear to be entirely hardy, except in the South and some favored localities in the Middle States. They are quite dwarf in habit, produce nuts larger even than the European, and begin to fruit when they are but four or five years old.

These two characteristics, of small size and early fruitfulness, give them special value, and, if they can be worked upon stocks of the American species, we can secure trees which will bear earlier and produce larger nuts than our native species.

The supply of chestnuts never equals the demand in this country, and many districts in which the trees are abundant derive a very respectable income from the sale of the nuts; it is therefore obvious that this is an industry which can be made far more productive and profitable than it now is, since very little effort has been made towards cultivation.—*Ohio Experiment Station.*

New or Little Known Fruits.

SEEDLING PEACH FROM LUCKNOW.

SIR,—I send you a seedling peach taken from a tree in Mr. W. H. Smith's garden in this village. It appears to be very hardy and has stood the frosts of the north for the past ten or twelve years without injury. This is the fourth season it has produced fruit.

JAMES BRYAN, *Lucknow, Ont.*

The sample was too much decayed for us to pronounce judgment for or against it, but we think it too small a peach to be desirable in the Niagara district where the larger kinds, coming in at the same season, can be grown. This sample is of medium size and apparently a good peach. It may be of value at the north, should it prove particularly hardy.

TYEHURST SEEDLING PEACH.

SIR,—I send you a small basket of peaches of a variety which I grew from a pit some years ago. It has proved to be the hardiest and most profitable of all varieties which I have tried, and I have tried a very large number. Let me know what you think of the peach. There are many varieties of yellow peaches, but this is very distinct from all the rest.

E. TYEHURST, *Leamington, Ont.*

This peach impresses us very favorably, for it is beautiful in appearance and comes in at a time when there is room for a peach of such qualities as it seems to have. The samples are in good condition to-day, 22nd of September, when Early Crawfords are entirely gone, and the varieties in the markets are such as Old Mixon, Late Crawford, Wager, etc., all of which, in our judgment, it surpasses in merit.

It may be described as large, roundish, somewhat flattened both at the base and at the apex, with very distinct suture on one side; skin golden yellow, with crimson on the exposed side; flesh yellow, moderately juicy, sweet and excellent, separates freely from the stone. Indeed, in this respect, it excels almost any peach we know, while it is free from the fault, which the Early Crawford has, of parting in the pit. In our opinion, this variety of Mr. Tyehurst's is one of considerable merit.

THE new Globe Peach is announced as having prodnced peaches 15 inches in circumference, which is hard to credit. It ripens with Crawford's Late. It is a good shipper, a freestone, and of the best quality. R. N. Y.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

FREEMAN'S Fertilizer Factory, Hamilton, which was damaged by fire several weeks ago, is being rapidly repaired, and will be in running order in a short time.

HARDY APPLES.—E. Reynolds, of Wisconsin, says that the best apples, for that country where hardiness is so important a consideration, are the Duchess, Walbridge, Wealthy, Wolf River and Whitney's No. 20. These will supply farmers with apples during ten months of the year, which is, of course, the chief purpose for which apples should be grown in cold sections.

CALIFORNIAN FRUITS.—This is the subject of a long article in the *Fruit Growers' Journal*, different writers giving their views regarding the effect upon our markets of the immense shipments of fruits from California. The general tenor of their remarks is to recommend more careful grading of our fruits and the use of more fancy packages, in order to place our fruit in fair competition with those from California. The packers there have the reputation of being very attentive to these details. Their fruits are more uniform in size than those put up by our Eastern fruit growers, and they are better graded and put up in more attractive style. We must learn their art if we would not be driven out of our own markets, during the season when their fruits come in so freely.

THE WEEKLY MARKET BULLETIN, which it was proposed to publish during the summer months for the benefit of growers, will not be issued regularly this summer as was intended. The reason is that the Postmaster-General does not consider such a bulletin of the character of those publications to which the

privilege of exemption from postage is extended. Our work, of course, is to distribute information which will tend to develop the fruit growing industry in our country, and mere business details should be left to those who buy and sell. Our Association has no interest whatever in buying and selling of fruit; our work is purely educational. We had thought, however, that the publication of such a bulletin might be of much real advantage to a large number of our members.

KEEPING FRUIT IN WINTER.—Dr. Hoskins writes a very sensible article in the *Garden and Forest* upon this subject. He says that an apple makes as much as one quarter of its growth while its seeds are coloring, and, therefore, it is not wise to gather them before this change takes place; but, as soon as the seeds are fully colored, it begins to deteriorate if left hanging, and, therefore, the gathering should be pushed as speedily as possible when the fruit reaches this point in its maturity.

When the fruit is carefully gathered, the question of keeping resolves itself into a question of temperature. The fruit cellars should be kept as near as possible to the freezing point.

It is important to avoid leaving the apples, after they are picked, exposed to the hot sun, the effects of which would be to ripen them very rapidly and very much lessen their keeping qualities.

PEACHES ON CLAY.—The *Country Gentleman* criticises our statement that peaches will not succeed upon clay soil. The editor states that his finest peaches came from trees which grow on heavy clay soil. This may be true in exceptional cases, especially where the soil has been well drained and well cultivated, but under ordinary circumstances, we should never advise our readers to plant peaches upon clay soil. We have all varieties of soil at Maplehurst and have repeatedly put peaches upon heavy land; but invariably they have succumbed early to yellows, and the fruit, although highly colored, has been small in size. Of two orchards which we planted fifteen years ago, one upon clay loam and the other upon sandy loam, the former was entirely cleared out about five or six years after planting, while many trees of the latter are still in good health and bearing abundantly. We shall be glad to hear further testimony from any of our readers who have had experience in growing peaches upon heavy soil.

THE BURLINGTON FRUIT GROWERS' ASSOCIATION visited Maplehurst in a body. They are a wide-awake company of fruit growers, and many of them are quite largely engaged in the business. Such an Association as this might be profitably formed in many parts of the country, much to the mutual advantage of its members. During the winter time they hold monthly evening sessions of their Association, at which one member reads a paper giving the results of his

experience and observation, and this is afterwards open for discussion by all present. A couple of hours is, in this way, very profitably spent.

In shipping from Burlington to Toronto, the growers there have some advantage over Grimsby growers in the matter of express rates; which are only five cents per 12-quart basket, while we have to pay eight cents.

The gentlemen spent some time in looking through the orchards hereabout, and expressed themselves much pleased with all that they had seen of the Grimsby fruit growing district.

ONE favor is requested of the readers of this journal and that is that each one should feel it a duty to make an occasional contribution to these columns of any items of interest in the line of horticulture which he may have gleaned from his own personal experience or from observation of the work of others. What is needed, to make our journal more mutually helpful to correspondents in all directions, is more frequent letters from every part of the province. If the work of preparing the journal is too much left to the editor, there is danger of its subject matter being written too much from a single standpoint. This would be unfortunate. Our membership extends from British Columbia to Nova Scotia; nearly all the members of the British Columbia Fruit Growers' Association are members with us, and also a large number of the members of the Montreal and Nova Scotia Horticultural Societies. We wish to make our journal interesting and useful to all, and, to this end, we invite liberal contributions from our readers; and we assure them that every courtesy possible will be extended to them in the pages of the CANADIAN HORTICULTURIST.

USE OF APPLES FOR ANIMALS.—F. D. Curtice, of New York, writes an article for the *American Agriculturist*, highly commending the use of apples for animals. He thinks that it is well worth the farmer's while to plant an orchard solely for stock feed, for it would yield when well grown, at least five hundred bushels of apples to the acre. With corn a cent a pound and apples at ten cents a bushel, he says that $100 would buy 78 bushels of digestible matter from corn and 80 pounds from apples; the corn having more fat, but not being so well balanced for food as the apples. He has been in the habit of leaving bruised apples upon the ground in the orchard, to be eaten by the hogs, and is certain that any one who has not fed swine in this way, cannot estimate the value of apples as animal food. He says that apples fed to a milch cow, will promote digestion and assimilation. At first he would give not more than four quarts twice a day, but this amount may be gradually increased to a peck, making half a bushel a day. The cow will give more and better milk for this extra food. They are also fine food for colts, eaten with bran.

Speaking of apple pomace, he says that a great deal of valuable food goes to waste every year from lack of knowing the worth of the pomace from cider mills. This has a greater value than apples, according to either bulk or weight,

containing a total of nearly 20 per cent. of nutritive value. Apple pomace has a higher nutritive value than roots. It can be preserved in a silo, where, although it will lose some of its nutritive value by fermentation, enough will be left to pay for all the trouble of saving it for pig food. The fermented pomace, he does not consider fit for milch cows, and even for hogs he would give with it some carbonaceous food, as, for instance, a few ears of corn.

WE have just received from Messrs. Woodall & Co., Fruit Brokers, Liverpool, a very interesting diagram, showing the weekly flunctuations of Canadian and American Baldwins apples in the Liverpool market during the last five seasons. It is interesting to notice that in the season of 1888-89, when the total export to Great Britain was about a million and a half barrels, 841,060 were received at Liverpool, and Canadian Baldwins that year reached their highest price in the month of March, which was 14*s.* 6*d.* Canadian Baldwins averaged their lowest that year of any of the five. In April, 1887, they reached 25*s.* 6*d.*; in April, 1888, 21*s.* 6*d.*; in April, 1890, 33*s.*; in April, 1891, 27*s.* The total number of barrels received in Liverpool during season of 1890-1, was 263,058 out of 451,000 imported into Great Britain. The largest received in one month was in November, amounting to 88,000 barrels.

From this diagram it would appear that throughout this whole time Canadian Baldwins have sold at a higher price than either New York, Maine or Boston; the next highest, being those from Maine. No doubt this is owing to the better keeping qualities of the apples grown toward the north.

Question Drawer.

QUESTIONS ON PLUM CULTURE.

SIR,—I have an orchard of plum trees; they grow too much to wood, producing as much as three feet per year. Put nothing on them but plenty barnyard manure, chiefly horse manure. They look healthy, and quite free from knot, but as they are the Moore's Arctic, dwarfed, and five years planted, they should bear abundantly; they do not, however. What is the cause? How can I remedy the difficulty? Have sufficient quantity of trees to produce one thousand bushels fruit. Where can I find market at the best price? Does the Moore's Arctic find ready sale? What is the average price per bushel for plums, by the wholesale? Is crude potash good for plum trees? How best put on? When? How much per acre? Name some reliable dealers in fertilizers.

Z. X. Y., *Charlottetown, P. E. I.*

We would be pleased if some of our readers who have had large experience in the growing of plums, would give a full reply to the above question.

There is no doubt that an excessive use of barn-yard manure will cause a large amount of wood growth, and tend to make the trees unproductive in consequence.

With regard to the best market for plums, it is difficult for us in Ontario to advise our friend in Prince Edward Island. Some one farther east could better reply. As a general rule, the best markets are those which are nearest home, for the express charges and long distances eat up all the profits. It is astonishing how small markets in our country towns can be developed when one continuously supplies their needs. Many people habitually go without fruits which they would be glad to use if they knew where to get a constant supply. The prices received for plums in Ontario, has averaged from 60 cents to $1.00 per 12-quart basket, or from $2.00 to $3.00 per bushel. But such varieties as Moore's Arctic would bring, we suppose, the lowest price, and would not sell rapidly where other varieties are in abundant supply.

Crude potash is an excellent plant food for any kind of fruit trees, but, of course, should be used in limited quantity. The best time to supply it would no doubt be in May or June, as if put in during the winter, it might be largely leached out of the reach of the plant before the coming season. There are several reliable dealers in fertilizers in Canada; Messrs. Brodie & Harvie, of Montreal, Que., are well known, as also, Mr. W. A. Freeman, of Hamilton, Ont.

PRICE OF APPLES.

SIR,—Can you tell me how much good winter apples ought to be worth? Some buyers are only offering $1. Can you recommend a good consignee in Great Britain?

JOHN LEONARD, *Beachville, Ont.*

It is impossible for any man to predict, without a supernatural gift, what will be the price of good winter apples. So much depends upon the supply from the various countries of the world; but, judging from the reports which we have received, we should expect to receive a good deal more than $1 a barrel for first-class winter apples. We think our subscriber would be perfectly safe in consigning to any whose name now appears in our advertising pages.

APPLE WINE.

SIR,—How much sugar and other substances to the gallon of cider? I want to get a tasty and keeping apple wine.

JEAN GRUENBECK, *Cayuga.*

Reply by D. Nichol, Cataraqui, Ont.

DEAR SIR,—In reply to subscriber's query: "How much sugar and other substances to the gallon of cider, in order to make a tasty, good keeping apple wine?" That would very much depend upon whether the cider was made from sweet or sour apples. The finest apple wine I have ever seen was made from Golden Russet apples—half pound of best white sugar to one quart of cider or

apple juice. The sugar was added to the newly extracted juice and all fermented together, the same as in the making of rhubarb wine.

If the cider was made from sweet apples, less sugar would be required; but then there would be the want of flavor. I could not expect to make a good tasty wine from cider made from a mixture of coarse apples. Fine apple wine can only be made from fine apples. I do not know that any substance other than sugar should be added to apple juice in order to make good keeping wine.

EARLY OHIO GRAPE.

SIR,—We send you a sample of our new grape, the Early Ohio, with some of the foliage. We have been picking the fruit since August 24th, and last year we picked the vines clean by August the 17th and 18th. For the last four years we have tested it, and it has proved to be one or two weeks earlier than Moore's Early. It is nearly as hardy as the Concord, and nearly if not quite as vigorous a grower and very productive.

Sept. 3rd, 1891. C. S. CURTICE & CO., *Portland, N. Y.*

This grape comes in very good shape, remarkably close-bunched, and commends itself to our notice on account of its earliness. The samples were dead ripe and in the very best condition for eating. The berry is black, below the medium in size, and thickly covered with bloom; the pulp is soft, containing a couple of seeds, and the quality is good.

WRONGLY NAMED.

SIR,—I send you this day sample of plum for correct name. The tree was bought for McLaughlin, but I have doubt as to its being that variety.

GEORGE SMITH, *Manilla, Ont.*

The plums which you sent are excellent samples of the Lombard. It is rather disappointing to buy trees for one variety and have them turn out another, especially when one's object often is to become acquainted with particular kinds. Many of our nurserymen are very careless in this respect. The writer has a tree, bought for *Duane's Purple*, but it is, this year, producing a heavy load of *Lombards*.

SEEDLING PLUM.

SIR,—I send you a sample of a seedling plum which is growing in the garden of Mr. Wootin, of Harriston. The pit was planted eleven years ago. It is a healthy looking tree and has a heavy crop of plums this year. What do you think of its quality?

JOHN PRAIN, *Harriston, Ont.*

This is a magnificent looking plum, and were the quality in keeping with its beauty of appearance, it would certainly be desirable for propagation; but unfortunately it is lacking in this respect.

Open Letters.

THE SHAFFER.

SIR,—The Shaffer raspberries which you sent with the CANADIAN HORTICULTURIST, have grown splendidly. The plants were set out in the spring, and the tips layered towards fall, twenty of them taking root. These I planted out this spring, so now have twenty-four large bushes which have given me some good-sized berries this summer. I do not think they are as good as the Cuthbert in flavor, but I never saw bushes make a better growth of wood.

ABRAHAM HALE, *Seaforth, Ont.*

USEFUL ANTS.

SIR,—Your correspondent, Mr. W. Dempsey (page 220), is, I fear, a one-eyed observer. Most likely the ants which he wishes to destroy are killing leaf pests upon his fruit trees. Ants have their own place in the economy of nature, and I have found them doing good work when the man they were helping wished me to aid him in their destruction.

R. W., *Winnipeg.*

Our Markets.

APPLES.—According to reports from all our markets, fall apples have a very dull sale. Fall fruit has been sold in Montreal at from $1.25 to $1.40 per barrel, and in New York City, fancy red winter apples, such as Kings, have sold as high as $2.50 per barrel. The advice from most quarters is to hold back the best winter fruit and late-keeping fall apples as late as possible, until the soft and inferior fruit is cleared out of the markets. Reports from England are somewhat to the same effect, and indicate that there is a large crop of summer and fall apples in Great Britain. After these are cleared out, the prospect is that Canadian apples of a fine quality will do well. Messrs. Wood, Ormerod & Co., of Edinburgh, who advertise with us, send us a code, according to which they intend sending us cablegrams of the prices of apples in Edinburgh. They say that at present only United States' fruit is being put on their markets and making, Kings, 19s. to 24s.; Maiden's Blush, 20s. to 22s.; Baldwins, 16s. to 18s. The quality of the apples thus quoted is fair to good, very little of it prime fruit. J. C. Houghton, of Liverpool, cables, under date of September 23rd, Kings, $4.38 to $5.82; Baldwins, $3.40 to $4 83; Greenings, $2.91 to $4.12. Messrs James Lindsay & Son, Glasgow, Edinburgh and Leith, cable, Kings, $4.38 to $5.82; Blush, $3.90 to $5.35; Cranberry Pippins, $4.38 to $5.82; Greenings, $2.92 to $3.85. The *Trade Bulletin*, of Montreal, says that a few contracts for apples have been made by Western men at from $1 to $1.28, on the tree. The New York *Fruit Trade Bulletin* is of the opinion that the shortage in apples in New York and Michigan, will be fully made up by the enormous crop in New Jersey and Pennsylvania, so that the prices will not run very high in America.

PEARS.—According to the New York *Fruit Bulletin*, the pear crop in the Eastern States is simply enormous, and, consequently, the prices ruling in the principal cities of the States has been the lowest on record, reaching as low as from $1 to $2 for merchantable fruit. Under these circumstances the transportation companies get nearly all the money, leaving very little for the producer. Fortunately, we have done a little better in Canada, and yet, considering that our crop has been not much over half the average, and that the quality has been extra fine, growers cannot help feeling inclined to grumble. Probably, now that early pears are over, our markets for late pears will improve.

GRAPES.—These have ripened up all at once this season, and nearly all varieties are ready for shipping. This, in addition to the fact that much green fruit has been pushed forward, is causing a temporary glut in all our markets. There is no doubt that the grape

crop in Canada and the United States is unprecedentedly large, and growers may expect very low prices. Yet with careful management in not overcrowding the markets at any time, but giving the consumers in our cities plenty of time to make use of them, we may surely expect that all may be disposed of at reasonable prices. If we can get even 1½ cents for such heavy yielders as the Concord, we need not complain. At this price they will be bought up for wine making.

LIVERPOOL APPLE MARKET.

Arrivals to date 11,412 barrels, all from New York, with the exception of 400 barrels. During the past three weeks a considerable quantity of early fruit has arrived. The first were poor quality and condition ; and as our markets were glutted with windfalls of the English crop, there was consequently very little demand, and large quantities were sold at 3s. to 7s. a barrel. The arrivals this week have mostly been early varieties, but showed a considerable improvement in quality ; and with less of the home produce offering, there has been more activity, and fair prices have been realized for good sound stock. King Pippins have attracted most attention, being good size, clear, and fair color, and sold up to 25s.; a few branded Baldwins were small, immature, and unattractive.

The late storms have greatly reduced our crop, which at the time of our annual report was only a poor one ; there is therefore every prospect that very shortly our market must entirely depend on America and Canada for its supplies.

Quotation for the week for sound .—New York—Baldwins, 12/6 to 16/9 ; Cran. Pips., 16/9 to 22/ ; Wagner, 16/9 to 17/9 ; Blush, 13/9 to 16/ ; Ribston Pip., 12/9 to 19/3 ; Ox Pip, 16/6 to 20/6 ; 20 oz Pip., 12/9 to 17/9 ; King Pip., 17/ to 25/ ; Greenings, 12/ to 18/; Fall Pips, 9/ to 13/3. Boston—Ramshorns, 15/9 to 20/. Canadian—Favorites, 18/ to 18/6 ; Fillbaskets, 25/.

Yours faithfully, WOODALL & Co.

Liverpool, 19th Sept., 1891.

NEW YORK CITY.

Hot weather still prevails at the opening of the week, and the market shows but little improvement on fruits, with the exception of fancy pears. Bartletts in light supply, and selling kegs from $1 to $1.75 ; Seckles, $1 to $1.50; Bueure Bosc, Duchess, Sheldon, per bbl., $1.75 to $2.50 ; quinces, per bbl., $2 to $3 ; plums, prunes, 20 to 40 cts. per basket ; Damsons, 25 to 75 cts. per crate ; apples, Kings, Alexanders, 20 oz., $1.75 to $2. Green fruit in heavy supply, selling at 75 cts. to $1.25 per bbl. Peaches, 50 cts. to $1.25 a basket. Market on grapes continues in demoralized condition, from the fact of the rumor of poisoned grapes, and prices ruling low. Delaware, 5 lb. baskets, 14 to 18 cts. ; Concords, 10 lbs., 15 to 20 cts., crates, $2 to $2.50. Potatoes in heavy supply, selling at $1.25 to $1.50. Sweet potatoes in heavy supply, selling at $1.25 to $1.50. Chestnuts, $5.50 to $6.50 per bushel. Hickory nuts, $2. Onions, red and yellow, $1.25 to $1.50. Eggs, nearly fresh, 22 cts. Spring chickens dressed, 12 to 15 cts. Fowls, 11 to 13 cts. Butter, select, dairy tubs and pails, 21 to 23 cts., prime, 18 to 20 cts. Market rules dull on beans and dried fruits, and no changes worthy of note.

G. S. PALMER.

Sept. 28, 1891.

EDINBURGH.

Cable from Messrs. Wood, Ormerod & Co., dated 1st October.

Kings, 19*s.* to 23*s* ; Maiden's Blush, 18*s.* to 21*s*, ; Baldwins, 17*s.* to 20*s.* Good prospects for choice Canadian apples.

Our Book Table.

BOOKS.

THE ANNUAL REPORT OF THE MINNESOTA STATE HORTICULTURAL SOCIETY has just come to hand. It is printed in fine type and forms a volume of 331 pages. It is bound in cloth very neatly, and contains some matter from which we may occasionally give extracts for the benefit of our readers.

FRUITS AND FLOWERS, is the title of a monthly magazine now being published in Portland, Oregon, E. R. Lake, Vancouver, Wash. Terr., Editor. It is got up somewhat in the style of the CANADIAN HORTICULTURIST, with a colored plate as a frontispiece for each number. It is a little larger, having 48 pages instead of 32. The price is $2 per year, or 20 cents a copy.

CATALOGUES.

HENDERSON'S AUTUMN BULBS for 1891. Peter Henderson Co., 34 Cortland St., New York.

WEBSTER BROS'. ILLUSTRATED BOOK OF BULBS AND PLANTS, for winter blooming Messrs. Webster Bros., Hamilton, Ont.

The Canadian Horticulturist, 1 year, - - - - - *$1 00*
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NOVEMBER, 1891.

The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

PUBLISHED BY

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SPRAYING FRUIT has received an advertisement that will result in making known its merits far and wide. The New York City Board of Health recently condemned grapes on the market that showed signs of poison on the stems, and had tons of them destroyed. The hasty action of the Board caused a grape panic. An investigation showed that the grapes had been sprayed with a solution of the Bordeaux Mixture, and that traces of the sulphate of copper remained on the stems. The matter was referred to the Department of Agriculture, which has for several years been recommending the spraying of grapes wtth this mixture, as a preventive against fungus diseases. The department officially replied that over a ton of grapes sprayed eight times with the mixture, would be required to furnish a single poisonous dose. After consumers understand it, they will not hesitate to purchase perfect fruit because of the means used to make it so, as long as they are harmless.—*Farm and Fireside.*

Spraying fruit trees, plants and vines, for the prevention of the ravages of insects and fungus diseases, is no longer an experiment, but a necessity in order to get large crops of perfect fruit. For full information on this subject address William Stahl, manufacturer of Excelsior Spraying Outfits, Quincy, Ill., who will send, free, a full and complete treatise on this subject.

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St. Catharines

Ontario

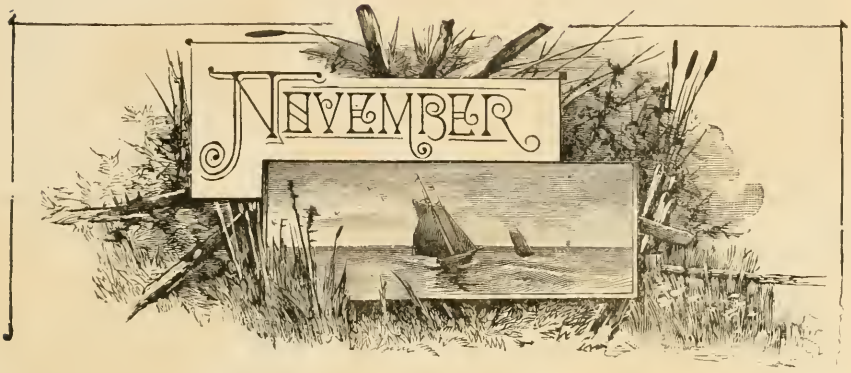
Frank Donnelly Esq.

LAWRENCE PEAR.

THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 11



THE LAWRENCE PEAR.

OUR frontispiece this month represents a well ripened sample of the Lawrence pear, one of the very best winter pears and one that should be in every collection, whether for home use or market. It succeeds well either on the pear or the quince. Though not large nor showy, its excellent quality and productiveness place it very high in the estimation of all pear growers.

We have grown it at Maplehurst for twenty years, and it is always the favorite dessert pear for the home during the month of December. The Howell, Sheldon, Duchess and Anjou are excellent varieties for October and November, but nothing surpasses the Lawrence for December and January.

The variety originated at Flushing, Long Island. The tree is a moderate grower, but although classed as hardy in most nurserymen's catalogues, it is not sufficiently hardy for any but the more favored portions of Ontario.

Mr. P. C. Dempsey, of Trenton, Ont., says of it: "With me the Lawrence is one of the best, if not the best, December pear. The tree is a good grower and very productive, but not hardy. It is nearly as tender as the Bartlett. It does better top-grafted upon some hardy variety."

Mr. George E. Fisher, of Freeman, President of the Burlington Fruit Growers' Association, says: "Ten years ago I planted twenty Lawrence pear trees. They

have made a fairly good growth and been fairly productive. The fruit is medium sized, somewhat coarse grained, pleasant in flavor, and when well ripened, is excellent for eating. One of the most striking characteristics of this pear is the beautiful golden color it takes on in the barrel, which makes it very attractive. The fruit is still on the tree at this date, October 8th, and is yet very green."

Mr. W. Holton, of Hamilton, also in reply to an inquiry with regard to his experience with this pear, says: "I have had the Lawrence pear in bearing for several years and think highly of it. It ripens in November and December, and is sweet, juicy and pleasant. It is a hardy stocky grower in the nursery, and, in the orchard, makes a broad spreading tree. It bears moderately while young, but improves with age. The fruit is of moderate size, and *will ripen anywhere as perfectly as any apple, and is never astringent.* It becomes yellow at maturity, with rarely a brown cheek. It is the best early winter pear I know of, coming in after the Beurre D'Anjou. Although not large, it sells readily in the market, and is just the right size for a dessert pear."

The variety is thus described by Charles Downing: "Fruit medium size, obovate obtuse pyriform, lemon yellow with traces and occasional patches of russet, thickly dotted with minute brown dots. Stalk of medium length and rather stout, set in an irregular russeted cavity. Calyx open. Segments short, persistent. Basin broad, shallow, uneven, or slightly corrugated, and thinly russeted. Flesh whitish, juicy, melting, sweet and aromatic. Very good to best. December."

UNFERMENTED GRAPE JUICE.—The grapes are picked when they are fully ripened and the juice extracted and bottled as soon as possible afterwards. The bottles are filled brimful and placed up to their necks in vats of hot water, within ten degrees of the boiling point. When the must is as hot as the water, the cork is forced into the bottle, expelling a portion of the liquid. No fermentation will ensue. As the liquid cools, it contracts, leaving a vacancy between the cork and the liquid; but the vacancy must not be an atmospheric chamber. The cork must, of course, be thoroughly air-tight. If fermentation does set in, it may be driven off by reheating the wine. The bottles are then laid on their sides in a cool place and the organic foreign substances must be allowed to settle, so that the liquid may become clear. The wine can lie six months or a year without damage. At the end of the settling period, it should again be filled into bottles, the sediment being left behind. These bottles must be brimful, and should again be set in vats of hot water, heated up to the same degree and corked in precisely the same manner as at first, using sealing wax to exclude the air. The wine is then left to cool in the ordinary way and must be put away where the temperature is even and cool. It is now ready for use and will keep just as long as it is kept free from contact with the atmosphere. This makes a very delightful beverage entirely free from alcohol.—E. HULSE, *before the Victoria Vegetable Commission, Australia.*

NEW VARIETIES.

THE fruit grower is ever on the alert for the appearance of new varieties, possessing points of merit sufficient to warrant cultivation. Too often the planter is cruelly sold by some unprincipled agent, or, possibly, by the nurseryman introducing the so-called new variety, for even nurserymen do sometimes swindle the unsuspecting as well as the suspicious planter. But I will not go further in the way of scourging either nurserymen or tree agents, as we cannot do without them, and their few evil deeds are more than atoned for by the good they do.

There was a time when there was abundant room for all the new varieties offered. But now that this province is fairly well supplied, we can profitably exercise more caution in accepting new kinds of fruits. On every hand we meet aspirants for immortality with some "chance seedling," and many bear such points of merit that it often seems harsh to discourage their introduction. At the fall exhibitions we meet with many new seedlings, and while a few possess more or less merit, the large majority are actually worthless. I examined a plum grown by Mr. F. Jordan, of Goderich, said to be a seedling from Yellow Egg. It resembles Huling's Superb in size, color and flavor closely, indeed, so much so, that I at first pronounced it to be that variety, and still have an inclination to hold to that opinion, although the foliage is much darker and the tree older and larger than I have known that variety to attain generally. Although a very large, healthy tree, there is no sign of black knot, and Mr. Jordan says he never observed any on it. Being situated where it receives abundance of nourishment, keeping the tree strong and vigorous, will, to a great extent, account for freedom from black knot. But what I desire particularly to claim is this: that, altogether, we cannot say there is in this seedling (if it be such) *enough* merit to warrant introduction in preference to Huling's Superb.

I saw what is claimed to be a seedling of Pond's, which so closely resembles that variety that I would and did discourage its introduction. There are a number of seedlings of Yellow Egg now in the country, but I have not seen any better than the parent, though some were larger, which might be accounted for in many ways, especially in young trees.

I have been watching with high hopes a seedling of Prince of Wales, and the first two bearings were so fine that I believed it was sure to come to the front, but the past season's crop proves how we may often be deceived in young trees. The seedling fell in my esteem sufficiently far to advise the grower not to attempt to introduce it; although probably as good as the Prince in all points, yet not excelling in important points sufficiently to warrant its taking the place of that variety.

While we should, as an Association, offer every encouragement for the production of seedlings, it is necessary to be particularly guarded in advising

planters, and it is not safe to come to hasty conclusions in passing our judgment upon new varieties.

In apples, most of those possessing merit are fall kinds, whereas there is more room in the long-keeping class for the introduction of new kinds. An apple about the size and shape of a good sized Baldwin, brighter in color and better in flavor, that would hold flavor as late as Swazie Pomme Grise, would possess merit, and, if hardy, would be entitled to general cultivation.

We would all welcome a winter pear as large as Duchess or Clairgeau with flavor as good as Josephine. In a late-keeping pear we require size as well as flavor to get commercial value. Indeed, size has a great deal to do with market value in the fruits of all seasons, and even the delicious Seckel, although holding the proud position of highest flavor in the pear, is languishing for the want of an appreciative market, simply because it cannot boast of size.

I would like to follow a large russet apple shown at the Western Fair by a Mr. Jarvis. Looking at a single specimen I considered it Roxbury, although well covered with a finer russet, but after seeing several specimens together and examining more closely, it is clearly not that variety. To me it is new, and if it is as long a keeper as I would judge from what I saw of it, and is a good cropper and hardy, it would be a decided acquisition. It would not be safe to judge by specimens seen at a fair, however, as generally the finest are taken for that purpose; but I would like to follow the apple into a closer acquaintance, as it has flavor, size and color as well as form to commend it as a russet.

I hope to see specimens of many new seedlings at our next winter meeting of the F.G.A.

Goderich, Ont. A. McD. ALLAN.

PROFITABLE CHERRY GROWING.—Mr. Powell is a large grower of cherries, having about 300 trees, 100 of which are in full bearing. The varieties are Black Tartarian, Black Eagle, Yellow Spanish, Napoleon, Bigarreau, Windsor, Elkhorn, Early Richmond, English Morello, and Montmorency. The Elkhorn, which has been in the past one of the most profitable cherries, will have to be abandoned as the trees are all dying. Why this is thus no one can tell.

"Were your cherries a profitable crop?" queried I.

"They did very well indeed. The crop was large; the quality good and prices averaged high."

"How did you manage to secure high prices, when others received very low ones?"

"It is simply a question of good taste and care in packing and arranging for market. All my cherries were shipped in the Armstrong & Atwater crate, which is supplied with springs. They hold six boxes of nine pounds each. The fruit was all faced in the same style as the California cherries, a labor which cost me about $7 per day during the season, but it paid me very well. It was mainly sold in Boston."—*Green's Fruit Grower.*

JOTTINGS ABOUT FRUIT.

SIR,—As the fruit season is now nearing its close for this year, I herewith send you a few jottings about fruit in this district. We are going to have a larger crop of apples than was anticipated a few months ago, and the sample is very fine. There is no fungus scab this year, and the Snow apples are as bright and clean as they used to be before the fungus appeared. There are very few culls, owing to the fruit having attained such a large and even size. The only culls of any account will be the wormy ones. Spraying has not been practised to any extent here as yet; but as the codling moth and curculio are getting in their work to a great extent, spraying will have to be done to save the fruit.

The *Wealthy* apple is becoming very popular here and seems to find its natural climate, as, like the Duchess, it attains to great perfection here. The same may be said of the *Pewaukee*: as a winter apple of fairly good quality, it has come to stay.

The *La Rue*, *alias* Baxter, *alias* Red Pound, is a very fine sample this year. This is the very best market apple we have and sells "like hot cakes" as a fall and winter cooking apple; for pies and puddings especially it has few if any equals, while its large size and bright red color make it a very attractive variety. I am sending you samples of those varieties, together with samples of a new seedling winter apple, which I believe will keep as long as the Ben Davis, while it is three times as large and, when thoroughly ripe, of good quality.

Plums were a very plentiful crop this year, especially the common blue ones; and wherever the trees were sprayed, the larger and finer varieties were very fine. Grapes have ripened well, owing to the fine warm weather of September. The yield is not large, owing to the May frosts having injured the blossom buds; but the samples are fine. Those exhibited at our fall fairs would compare favorably with those grown farther south. But, as a rule, our seasons here are too short for late ripening varieties.

Raspberries were a good crop, the best we have had for several years, but hard to sell as the market was glutted with wild ones, which were sold very cheap.

Strawberries have made a fine growth and, from present appearance, we would expect a good yield next year. Speaking of strawberries, reminds me of an article in the July number of the Horticulturist, copied from *Popular Gardening*. It was written by one E. P. Powell, in which he compares a Wilson strawberry to a Champion grape. Perhaps he is a high authority on such matters, over there; but one cannot help feeling curious as to what E. P. Powell had for dinner the day he wrote that article.

He says, "The Wilson will never educate the taste for berries." I believe it has played a larger part in educating the taste for strawberries than all the

other varieties combined; and among all the new varieties, if there is any all-round berry to beat it, will somebody rise and tell. My customers always ask for the Wilson for canning, and also for using fresh, and I grow a great many varieties. I try almost every new variety that comes out, and sometimes pay as high as $3 per dozen for plants that prove on trial to be humbugs, boomed by parties who are financially interested in their sale. I have only one fault with the Wilson, that is, the rust on the leaves; if it were not for that, I would not discard it for any of the new varieties. For hardiness, for productiveness, for shipping qualities, aye, and for "eating," when well ripened, the old reliable Wilson has few equals in my estimation.

Craighurst, Ont. G. C. CASTON.

THE SIZE OF PACKAGES

The statement (page 295 of the October number) that "a great deal of fruit is put up in small packages which would be much better sold in larger bulk," is true, if it is meant that the consumer gets more value for his money, but is not in accordance with my experience in selling grapes this season, if it is meant that fruit sells more readily in large packages. We sell almost altogether on orders, and arrange our price list so that it is a matter of indifference to us whether fruit is ordered in five, ten or fifteen pound baskets. I have taken three groups of orders, of ten each, nearly all from customers who had ordered several times before, and who must have known what suited their trade and were free to choose the size of the package. The result is that the number of fives, tens and fifteens ordered were in the ratio of 9, 5, 1. It may be well to add that we sell very little in the cities. What little we placed on commission was in the city of Detroit, only ten minutes from our Windsor office. I dropped in sometimes and listened to the comments and criticisms as our own fruit was being sold. The following points were strongly emphasized:

1. Customers will pay from ¼ to ½ cent per pound more for a full looking basket (which you cannot get with the Walkerville, or with a board cover), with the appropriate shade of leno over it.

2. The favorite package for the commission man's Saturday morning's "women's trade" is the ten pound basket.

3. The fruit stands and grocers, who break bulk, take fifteen or twenty pound baskets. All others take small baskets, except those who make a small quantity of wine for their own use.

4. The "Diamond" basket sells slightly better than the "Climax" in Detroit market.

Windsor, Ont. ALEX. MCNEILL.

NOTE.—Undoubtedly the ten pound package is better for grapes than a larger size. The statement referred more particularly to putting up apples and pears in small baskets.—ED.

NOTES FROM MAPLEHURST—IV.

FALL PLANTING.

ITH farmers generally the autumn is the most convenient time for planting trees, because of the more abundant leisure which that season affords; but with fruit growers it is the very busiest season of the whole year. We find that the gathering and shipping of winter apples, and the gathering and marketing of the later varieties of grapes, keeps us busy until the middle of November, when very often Jack Frost closes up all such operations as planting trees. All our experience in fall planting of peaches, apricots, and cherries has been unfavorable. They certainly do not succeed as well as when planted in the spring; but hardy fruits, such as the apple and pear, will succeed, if planted early in soil that is well drained and not subject to heaving with the frost. A very important precaution in fall planting, indeed in planting at any time, is to fill in fine soil among the rootlets and to tramp it down firmly. Blackberries, raspberries, currants and gooseberries also do well by fall planting. The sooner this is done after the fall of the leaf the better.

Cuttings.—This month will be a very good time for making cuttings of currant and grape wood. No better season for the pruning of plants and vines can be chosen, because if left till spring it is very often neglected altogether. The wood that is desired for cuttings should be of this season's growth, well-matured, and cut into lengths of from six to eight inches long. Some advise planting these cuttings in nursery rows, two or three inches apart, where they are to grow a year or two, until they are fit to be transplanted. But in our climate we would advise rather tying them in bundles of convenient size and burying them in some dry sandy spot until the early spring, when they will be found perfectly fresh and the cuts will be well callused over. Treated in this way scarcely any of them will fail to grow if planted in suitable soil, partially shaded. It matters little, however, whether the cuttings be made in fall or spring; they will do equally well, in our opinion, if made while the plants are still dormant in spring, say in the month of March, and buried either in the ground, or in fresh saw dust, until planting time.

Apples for Export.—The quality of the apples which are this year being harvested at Maplehurst, and, according to reports, from all parts of Ontario, is such as to encourage us considerably in the matter of export. Greenings are exceptionally large and fine, with bright colored cheeks and unusually firm flesh, promising to carry well any distance, and keep longer than usual. The Cranberry Pippin is this year one of the most productive varieties. In the orchard

our trees are literally breaking down with their load of magnificently colored apples. They are free from those blemishes which sometimes disfigure them, here are no worm holes, and, indeed, scarcely any second-class fruit. Out of fifty barrels just packed, there are scarcely two barrels of second-class apples, a notable contrast to some years preceding when we had one-third to cull out for that grade. The evaporator this year is not of much use, for nearly all the fruit is fitted to pack in a fresh state and bring the top price. As far as quality is concerned, the same remarks may be made of most varieties, but, unfortunately, there are scarcely any Baldwins or Spys in bearing this year. Surely such apples as Ontario is producing this season will gain for her a name that will long be remembered in the foreign market; and if fruit of such quality does not bring us remunerative prices this year, how can we expect that it ever will?

THE YIELD.—Although only a few varieties are bearing a crop this season, and perhaps three-quarters of the trees in most orchards are entirely bare of fruit, yet the yield, from those trees which are in bearing, is astonishing. One tree of Greenings, that did not appear to be unusually loaded, turned out sixteen barrels of beautiful apples. This is nothing extraordinary for this variety: some years ago we picked twenty barrels off a tree that adjoined this one. Of late, however, owing to the feeble state of the trees, such a yield has been scarcely known. This year, the trees, are comparatively free from that fungus, and seem to be recovering their old vigor and consequent productiveness. The Cranberry Pippin, above mentioned, in an orchard about twelve years planted, is yielding about four barrels to the tree. The picking was inspiring; our men tried a picking race and two of them succeeded in filling a barrel each in four minutes, and another man in five minutes. Sometimes it is difficult to average a barrel an hour, where the fruit is scattered.

HARRIS' STEP LADDER.—We always feel inclined to encourage every new appliance which is invented for the benefit of the fruit grower. Anything new in the way of packages, ladders, packing benches, etc., is always welcome to a notice in these columns, whether the result is pecuniarily beneficial to the inventor or not. Mr. Thomas Harris, of Meaford, has recently invented a folding fruit ladder; a cut of which is here given. It is strongly built and very ingeniously arranged, so that it can be folded into a portable condition and easily set up. The price seems rather high, but when the amount of work upon it is considered, it is, no doubt, worth all that is asked for it. It is well adapted to the home garden, and particularly suitable for use in an orchard on rolling ground, because its three props can be so adjusted as to be perfectly safe upon any surface. This, in our opinion, is its great commendation; and the iron hook, for pulling down all limbs until they are within reach of the hand and the support for the basket, are all great conveniences for the home garden.

But with commercial orchardists, who are pushed with a crop of ripening fruit that must be hurried off, and whose orchards are situated on perfectly level ground, this ladder is rather too heavy and requires too much adjusting, to become really popular. Such men need light ladders that can be set up in a jiffy and with one movement of the arms, while this requires two or three.

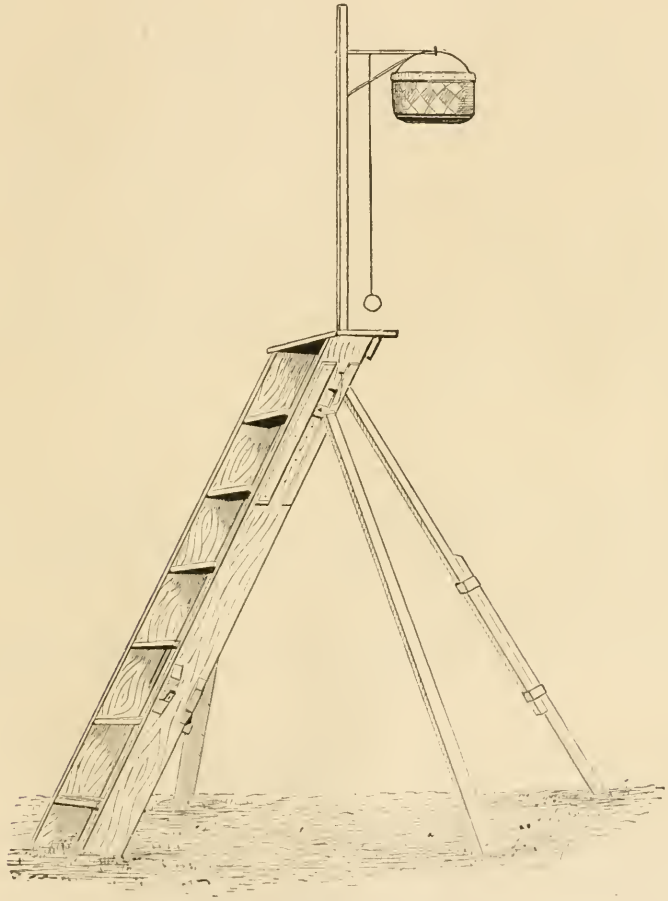


Fig. 59.—Harris' Step Ladder.

Pruning Trees can be done in October and November, to excellent advantage. If this operation could be performed before the fall of the leaves, there is no doubt that the wounds would begin to callus in the fall, and would heal better than when done in the cold winter. Shrubs and hedges could also be pruned at this season with propriety, the object being to give them the desired shape; for, just before the foliage falls, one can more easily see what limbs

require removing than later. There is no better time in the year than the month of November for pruning the grape, and this season is a favorable one for most growers. It is a time of leisure, for the fruit crops are nearly all shipped; and one can take time to attend to these matters. Certainly, in Ontario, our growers need to pay more attention to the pruning of their grape vines than they have done. Otherwise, their vineyards will become, in time, an inextricable tangle, unsightly, and unsuited to bring about the best results.

BURNING TRASH is a highly desirable work at this season of the year. Old brush, loose sticks and weeds harbor mice, and give a place an untidy appearance, unless they are collected and burned. Old leaves or decayed fruit should always be made away with in some way, for upon them many fungi, such as mildew, scab, rot, etc., live through the winter and are ready to attack the new growths of another season. Troublesome weeds, which scatter their seeds, are now already mature. Were these carefully pulled and burned, much future trouble and expense would be saved. Could we only do each piece of work in its proper time, how much additional labor and toil might be saved to men who are already overburdened with work, in trying to keep their orchards and gardens in a tidy and creditable condition?

THE WORLD'S FAIR.

It will soon be time for the fruit growers of Canada to stir themselves with regard to a creditable exhibit in their department at the approaching exposition at Chicago, in 1893. No doubt British Columbia and Nova Scotia will vie with Ontario for the best exhibit for the purpose of drawing attention to their provinces. Let us not be behind.

In reply to a letter of inquiry, we have received the following letter from Mr. J. M. Samuels, the Director of the Horticultural Department of the World's Fair:

DEAR SIR,—I am glad to notice that you are taking an interest in the Horticultural Department of the World's Columbian Exposition, and will be very much pleased to have Canada make as large an exhibit from the different provinces as possible. I am quite familiar with the pomological resources of Canada, having spent considerable time in the Dominion, and am aware that you can make one of the finest displays of any of the countries in the world, and have no doubt a large and creditable exhibition of your horticultural resources will do your country more good in the way of inducing immigration than the one at the late Colonial and Indian Exhibition in England.

The classification in our Department is the most elaborate and perfect of any exhibition yet held, and will provide for a display for your whole country, for each province, local societies, and for individuals, and your different provinces will be placed on an equal footing with our own States.

I will be glad to receive copies of your journal of horticulture, and will take pleasure in keeping you supplied with World's Fair literature.

Very respectfully,

J. M. SAMUELS,
Chief, Department of Horticulture.

Office of the Director-General,
World's Columbian Exposition, Chicago, Ill.

SECOND-GROWTH GRAPES.

I HAVE had this year an experience which, though perhaps not unique, I believe to be very unusual. I will briefly record it and will be glad to know whether any of your viticulturist members have had a similar experience.

On the morning of 23rd May last my vines, sixteen in number, presented a most gratifying appearance; there were an average of thirteen upright canes on each vine, and on each cane about eight good strong healthy laterals, and on each lateral from three to five clusters of flowers; some, indeed, had the young grapes partly set. The total number of clusters, then, were over six thousand! Of course not more than one-tenth of these should or could be ripened. I was naturally jubilant at the prospect of such a crop.

But as you know, "The best laid schemes o' mice and men gang aft aglee," and certainly in my case I realized that, for that night a pretty heavy frost swept over the greater part of our fair province, causing terrible destruction among farms, orchards, gardens, etc., and my vines, which the day before had been "things of beauty," were now a scene of utter desolation, and my grapes, flower and berry, were entirely destroyed, and nearly every young shoot met the same fate; only where the friendly shelter of a neighboring tree had screened the vine from the killing effects of the frost, had a few of the shoots escaped, but of the grapes not one was left, a few of those on the sheltered branches appeared to be unharmed, but very soon they, too, withered and died. I, of course, concluded that my chances for a crop of grapes were *nil* for this year; but, the weather being favorable in a few days, the eyes that would, under ordinary conditions, have remained dormant until next year, began to move and soon two, three and even four shoots shewed themselves. In process of time these were reduced to one each and a profusion of flowers appeared; these were attended to more as a matter of course, than in the expectation of their reaching maturity, but as time wore on, these young grapes grew so rapidly and showed such vigor, that I began to hope that, if favored with a fine fall, there was a possibility—remote, perhaps—of some of the earlier kinds ripening. But, Sir, you will doubtless be surprised when I tell you that, with the exception of one vine, of whose name I am not sure, but think it is the "Agawam," which has not ripened its fruit, all the others have matured theirs well! and not only that, but the fruit has been of exceptional excellence both for size and quality, and taking into consideration the loss of, at least, a month of the most active growing season and other circumstances, it is a very remarkable, and as it has ended, gratifying occurrence.

I have gathered from fifteen of the vines, about 200 lbs. weight of grapes, three of them having very little fruit of the second growth.

86 Howard St., Toronto. J. L. Thompson.

ORIGINATING BETTER FRUITS.

ON the night of October 12 our first hard frost occurred, and killed the leaves of dahlias, zinnias, maize, grape vines, etc.

It is generally considered necessary to take down and protect grape vines in the fall, but in this district last winter very many remained on the trellises or other supports, and yet bore fruit abundantly.

Will the Central Experimental Station at Ottawa give us an opportunity to try the Chinese herbaceous vine, which every summer runs up from the root like a clematis, and bears fruit? Though not best for wine, it might be useful for other purposes.

It is also to be hoped that the same station will find or breed better garden gooseberries than those we now have, that all seem descended from the swamp berry which, though smooth, has few other good qualities, being poor in flavor and low growing, with a sprawling habit, and a tendency to layer or root in all directions. Our other sort should make a far better parent, being upright and tall, sometimes seven or eight feet, little liable to injury from snow, renews itself indefinitely, is so good for preserving as to be called in U. S. the jam-berry, is of finer or higher flavor, and often of good size. Some are very prickly or spiny, but others almost or quite smooth. Seedlings from the best do not bear fruit of equal quality.

The same is true of our native crabs or haws. I sowed seed of a very beautiful golden-yellow one, and all the young plants bore red fruit.

It is generally believed that grafted apples cannot be grown from seed, but I have in bearing two St. Lawrence seedling trees perfectly true.

Apropos of apples, some standard sorts are hardly worth keeping on the list, and many seedlings are well worthy of propagation and general introduction. While most revert more or less to the crab, in every district there are seedlings middling or good in quality, and a few really valuable, and means should be taken to save and multiply such. Unfortunately their owners are seldom competent to judge or select, being inclined to put appearance before reality, and are naturally disposed to think their own geese swans.

Few will incur the trouble or expense of having seedling apples, etc., tested by qualified men, and valuable trees are allowed to die or be destroyed, when they should be a public benefit. But for the possible expense, the most feasible plan might be to appoint some intelligent orchardist in each township, whose duty it would be to find and try all likely seedlings, and a reward should be given for each considered actually valuable according to a given scale of points.

Orillia, Oct., 1890. J. CUPPAGE.

IT takes a pretty smart phrenologist to tell what is in a barrel of apples by examining its head.

NOTES FROM THE TWENTY-THIRD BIENNIAL SESSION OF THE AMERICAN POMOLOGICAL SOCIETY.—1.

TO a northern grower the exhibit of fruit was one of much interest, owing to the great variety embraced, and the variations noted in the same fruit when grown under different conditions. Apples from Minnesota, peaches from Delaware and Connecticut, persimmons from Georgia, oranges, lemons and pineapples from California and Florida met the apples of Maine and the pears of New England. Minnesota fruit resembles, in high color and smooth skin, our Canadian apples, presenting a strong contrast to the green and cloudy looking specimens from Virginia and other southern States. One could not help wishing for a collection of our brilliant colored varieties with which to give tone and brilliancy to the general exhibit by way of contrast.

Among the newer varieties of apples exhibited, McMahon's White from Minnesota and Wisconsin (it having originated in the latter State) attracted much attention and favorable comment, owing to its very large size and golden waxy color with bright blush on the sunny side. In quality it ranks with Duchess, and in season with Wealthy. The tree is strictly hardy at Ottawa, and exceptionally vigorous. The fruit may not be suitable for distant shipment, but the planting of this variety should certainly be encouraged in the north. Ostrekoff's Glass, a Russian apple grown in Minnesota, is also worthy of notice, valuable on account of its hardiness; season early winter. Maine exhibited a number of seedlings of great promise, and it will be my endeavor to obtain these for trial here as soon as practicable. Hibernal received good words from Minnesota growers as an iron-clad stock for top working.

Among the newer grapes, Munson's Brilliant was the most striking, and from size of bunch, berry, and also judging from its fine quality, it will undoubtedly receive attention in grape growing districts: in color and form of bunch, it resembles Brighton. August Giant, Secretary, Jewel, and Empire State are not likely to be widely planted. Green Mountain or Winchell and Ulster Prolific are much more promising.

Pears. Magnificent specimens of Keiffer pears were shown from Georgia, two of which I have laid on the scales and find that they weigh 16½ and 17 ounces respectively. The Lincoln pear was exhibited, an attractive looking variety about the size of Flemish Beauty, but evidently later, and of fine quality.

Mr. J. H. Hale, South Glastonbury, Conn., exhibited a considerable quantity of Excelsior peach, claimed by him to have fruited heavily and annually when the buds of all others had been killed by late frosts; fruit medium in size, quality equal to Crawford.

Interesting collections of citrus fruits were exhibited by Rev. Lyman Phelps,

of Florida, showing the immediate effects of cross-fertilization. There seems to be no doubt that in citrus fruits at least, the effect of foreign pollen—pollen from other varieties—is plainly shown on the product of the same year.

The collection of Japanese persimmons (kaki), shown by President Berckmans, of Georgia, demonstrated the rapidity with which these celestials are becoming naturalized. The fruit, thoroughly ripened, is delicious and palatable: but the taste for them in many cases will have to be cultivated.

The programme contained papers from the best horticultural workers on the continent, discussing questions practical and theoretical, the most important of which will be noticed in the next number of the HORTICULTURIST.

JOHN CRAIG.

Horticulturist, Central Experimental Farm, Ottawa.

GRAPE JUICE AS A BEVERAGE.

The strong objection to the use of fermented grape juice, even when the proportion of alcohol is very small, render the "fruit of the vine" a forbidden article, even for invalids, in many households. But pure grape juice, in an unfermented state, is both wholesome and refreshing, and those whose temperance principles will not suffer them to indulge in even the lightest wine may still enjoy the luxury of drinking grape juice without a twinge of conscience.

In that excellent book, "Diet for the Sick," by Mrs. Mary F. Henderson, a method of preserving grape juice is given, for which she acknowledges her indebtedness to Dr. Dodds, of St. Louis. This being the time for preparing this beverage, we give her directions for making it. As will be seen, they are essentially the same as for canning ordinary fruits, but we quote the whole for the benefit of those who may not have had experience in canning:

"Take grapes thoroughly ripe, and fresh from the vine. The Concord and Isabella are especially good, but any fresh, ripe and juicy grape may be used. Allow one quart of water to three quarts of grapes, freed from the stems. Use no sugar. Let it come slowly to a boil, and when the whole mass is boiling hot, strain the juice through a cheese-cloth, flour-sack or other strong cloth. Then return the liquor to the fire, and as soon as it is at the boiling point again, can it.

"The less the fruit or juice is cooked, the brighter will be its color and the better the natural flavor of the grape will be retained. This, like all other articles to be canned, must be at the boiling point when it is sealed. If the juice is to be used at once, it should not be brought to the boiling point a second time. Use wooden spoons in its preparation, and only glass jars for keeping it. The action of any acid substance on tin is to corrode it and poison the fruit.

"Before heating the grapes, see that all the necessary preparations are complete; namely, that the jars and covers are clean, the covers fitted, etc"

THE WINDOW GARDEN.

If you have a bay window rip up the carpet or oil cloth and have the floor covered with galvanized iron or zinc with a rim an inch high all round ; then you can give your flowers a semi-weekly shower bath without much trouble. If you have no bay window, a wash-tub will answer ; set the plants into it and give them a good showering with the sprinkler with water that does not feel cold to the hand. This washes off the dust, and if enough tobacco tea is added to give the water a plain odor of tobacco it will keep down the aphis or green fly. These shower baths should be given weekly.

The air is, in most cases, far too dry for plants or people. This can be easily remembered by keeping a dish of some sort filled with water upon a hot part of the stove where it will almost boil. Stoves differ, but you can have a dish fitted to yours by the tinsmiths, and by all means don't fail to have it, especially if you have roses. Speaking of roses reminds one of two of three reasons why most people fail with roses in the house. In the first place they fail to keep the air moist and thus give a standing invitation to that deadly enemy, the red spider. Next, the temperature of most living rooms in winter is kept about 80°, which is 10° too high for the people, and 15° to 20° too high for the plants, another invitation to the red spider.

Don't keep your rooms so hot, and if your plants must, from the size or shape of your room, stand very near the stove, make a light frame of wood with legs that will hold it up edgewise and cover it with some neat pattern of wall paper, putting a border around the edge. This will make a light, neat fire screen which will keep your plants from cooking, and, if well made, be an ornament besides.

If you can give your roses a window in some room that has no stove in it, yet which does not freeze, they will do far better, and an occasional slight frost will do them far less injury than continual dry heat. If you are forced to keep your plants where they are likely to freeze, keep dishes of water among the pots. These will help to moisten the air and lessen the chance of freezing, and do not forget that the nearer the floor your plants are the more likely they are to freeze.

This is a good time to carefully note all plants as need repotting, and do it now, while the plants can be left outside for a few days after the operation, to recover, and while soil for the purpose is readily obtained. It would not be a bad idea, if you have many plants, to stow a barrel of well prepared soil in the cellar where it will be handy for early spring seed pans or for any repotting during the winter.

There is a little knack about repotting plants. If you wish to shift to a pot of larger size, especially if is a plant that does not take kindly to disturbance at the roots, fills the new pot with soil far enough up to make the difference in depth between it and the old one, allowing for any drainage material there may

be in the old pot, which will, of course, not go in, also, for half an inch at the top for watering. Now place your left hand, palm down, over the old pot, letting the stem of the plant come between the first and second finger. Turn the hand palm upward, firmly grasping the pot, and give the bottom of the pot one or two sharp blows with the palm of the right hand, which will loosen it, when it may be lifted off by the right hand and the plant deftly turned upright in the centre of the new pot with the left hand, and steadied in that position while the space between the ball of earth and the pot is sifted full of fresh soil.—*Ex.*

DANGER OF COPPER.

In the article on page 307 in the October issue of the CANADIAN HORTICULTURIST bearing the above heading, the danger arising from the use of copper is, I believe, much exaggerated. In the first place, Professor McCarthy presupposes, that sulphate itself is used. In this province, however, it is usual to use the carbonate dissolved in ammonia. After use, the ammonia gradually vaporizes, as carbonate or hydrate, leaving copper carbonate on the leaves. This will eventually reach the ground, either as carbonate or oxide, both of which are insoluble and incapable of robbing the soil of its plant food as mentioned in the article referred to. Last spring I used in my small garden a solution made by mixing the copper sulphate and soda carbonate solutions, and without drawing off any liquid, or in any way separating the precipitate, adding the ammonia to dissolve the precipitate. This answered perfectly and saved much of the usual labor of manufacture. In this case, also, the copper eventually became insoluble, thus avoiding all the evil effects of which Professor McCarthy refers.

London. W. E. SAUNDERS.

ANNE DE DIESBACH is one of the finest of two dozen roses growing in the rose walk at Maplehurst. In size it almost equals the Paul Neyron ; samples plucked on the 4th of July measuring five inches in diameter ; in grace of form it far excels that famous rose. Then, it has a graceful habit of half concealing its superb flowers amidst a wealth of vigorous foliage, reminding one of some shy maiden scarce willing to be courted.

The plant is a vigorous grower, but is not a very free bloomer. Yet, since every bud counts and none of them are malformed, like many of those of the General Washington and of some other varieties, it is quite satisfactory even in this respect. In color this rose is a lovely shade of carmine, and, in every way, a most desirable rose for the amateur's garden.

THE APPLE CROP.

There are so many contradictory reports afloat both with respect to the apple crop in Ontario and to the condition of the foreign markets, that buyers are very slow in making engagements. Indeed, in some sections of Ontario we find growers so totally discouraged that they have about decided to leave their apples ungathered in the orchards, because they fear they will not be worth enough to pay the expenses of handling. We believe this to be a mistaken notion, because, first, the quality of our fruit this year is exceptionally good secondly, the amount of apples that will be exported from Ontario this season will certainly be below the average of other years. This is not the bearing year with the orchards generally, and three-fourths of the trees are entirely devoid of fruit. From all present indications the year of 1892 will witness the greatest apple crop upon record. But, in our opinion, the outlook for the apple growers this season is, on the whole, rather encouraging.

The following are a few of the latest reports upon which we base our opinion concerning the state of the apple crop in Ontario :

STORMONT.—*Sir,*—Fall and winter apples are a good crop on high lands where the late spring frosts were not destructive, but on low lands not over a half crop. The quality, however, is very good.—W. S. TURNER, *Cornwall, Ont.*

CARLETON.—*Sir,*—Winter apples are probably an average crop about Ottawa and eastward. Fameuse generally a fair crop, of higher quality than has been harvested for the last three or four years.—JOHN CRAIG, *Ottawa*

FRONTENAC.—*Sir,*—Regarding the crop of winter apples, I can assure you that although the markets are glutted with fall fruit. the winter apples are much less than half a crop in this district.—D. NICOL, *Cataraqui.*

PRINCE EDWARD. —*Sir,*—The crop of winter apples in this county is a full average, but as we proceed northward the crop gradually diminishes until there are none. On the whole, there is not more than one-quarter of a crop, but we have never had such fine samples.—P. C. DEMPSEY, *Trenton, Ont.*

YORK.—*Sir,*—As far as I can ascertain, the crop of winter apples in my agricultural district will be limited to nearly one-third, and, perhaps, even less than that. Fall apples have been a drug.—W. E. WELLINGTON, *Toronto, Ont.*

WENTWORTH.—*Sir,*—I think the apple crops below the average, although the quantity appears to surpass the expectations as the harvesting progresses.—M. PETTIT, *Winona, Ont.*

PERTH.—*Sir,*—From present observations and from information gleaned from buyers and packers, I would put the crop in this county at one-half. In some parts of Middlesex it is two-thirds, but, in other sections it is only one-half. The quality is uncommonly good, and the unusual size fills up fast in barreling.—T. H. RACE, *Mitchell, Ont.*

HURON.—*Sir,*—The apple crop of this section cannot be estimated at over one-half. All kinds are very clean and well colored and fairly free from moth.—A. McD. ALLAN, *Goderich, Ont.*

ESSEX.—*Sir,*—Winter apples will be a light crop in Essex county this year. I will estimate the yield at one-quarter of what it was in 1889, but the sample will be very good. —N. J. CLINTON, *Windsor.*

NORFOLK.—*Sir,*—The crop of winter apples has improved beyond most sanguine hopes. The canning and evaporing factories of Waterford have bought up over twenty. thousand bushels of apples for use in their factories within the radius of a few miles I think on account of their fine size the crop of winter apples in my agricultural district will exceed the average.—J. K. MCMICHAEL, *Waterford, Ont.*

LINCOLN.—*Sir*,—I do not think that the crop of winter apples will exceed one-half a crop. Some orchards in favored localities are full, but there are plenty with no fruit worth speaking of, especially where they have not been manured or cultivated.—A. M. SMITH, *St. Catharines, Ont.*

SIR,—I would venture to say that one-quarter of a full average crop would fully cover the whole quantity of winter apples in this district. Many of the trees that are bearing are only loaded on one side, and, in many cases, on only one limb. The fruit is remarkably fine in size and free from blemish, and beautifully colored, which conditions may result in a larger export than was at one time expected. The warm weather in the latter part of September caused the fall apples to ripen rapidly, and, consequently, they were hurried into the markets. This circumstance led many to suppose that the crop was immense, but time will prove the contrary. Could the system of inspection of fruit have been established this year, as was urged by the fruit growers upon the Government, I would venture to assert that dealers would be found buying apples by cable and wire all over Canada to-day, and that better prices would result. As our late Grand Old Chieftain said, "It is a subject well worthy our serious consideration, and ought to be carried out," but in this case legislation, like apple ripening, seems to require time.—A. H. PETTIT, *Grimsby.*

TO PRUNE BEARING TREES.—A question asked by many is, "What is the proper way to prune bearing trees?" In old trees we not only prune to secure symmetry and quality, but to remove all dead and diseased branches and to induce fruitfulness. If the orchards had been properly and frequently pruned during the earlier stages of growth, trimming at this time will simply consist of rubbing off the succulent shoots as fast as they appear, but such a case as this is rare. Trees may be seen all over the country which have never been cut with shears or saw, and if the work had been done it was accomplished with a common axe with probably very little care. Large branches should be cut away only when absolutely necessary, but the compact heads found in some old neglected orchards necessitate the removal of a few large limbs. It is sometimes difficult to select the proper ones to remove, but in such cases the tree should be carefully studied before beginning operations. An ordinary pruning saw may be used, but the limbs should not be cut so a large proportion of their base remains which will require a second pruning, nor so close to the main stem as to injure its wood. A little practice in trimming will soon enable one to make judicious selection of large branches and to effect their removal in a proper manner. When large branches are cut off the surface of the cuts should be pared smooth with a knife to facilitate healing and to prevent water from soaking in, which is liable to cause decay and serious injury.—R. L. WATTS, *Tennessee Experiment Station, in Farm and Home.*

HIS LIMIT.—A disappointed fruit pedlar was belaboring his slow but patient horse in a street in Plymouth the other day, and calling out his wares at intervals, as :

"Apples, apples, fresh apples." A tender-hearted lady, seeing the act of cruelty to the horse, called out sternly from an upper window :

"Have you no mercy?"

"No, mum," was the reply, "nothin' but apples."

Packing Grapes for Market. The packing of grapes for market is a delicate operation and one in which both care and judgment should be exercised if the best results are desired. In the preparation of the fruit before it is matured and ready for clipping, much attention is necessary. It will not do to allow the grape-vines to fruit to their full capacity, any more than it will do to permit peaches, plums, and apricots to set at will. Thinning is the first requisite in the growing of perfect fruit, and especially is this true of grape growing.

Having thinned your fruit bunches, bear in mind that when the grapes ripen only perfect bunches should be picked for packing. Provide your pickers with crates or trays holding about 25 pounds each. As fast as these trays are filled have them carefully placed in the packing house in racks so that the bottoms of one tier of crates will not rest on the fruit of the tray below it. In this packing house the grapes should remain for from thirty to forty-eight hours before being packed in the baskets. This is for the purpose of permitting the stems to wilt and thus admit of close and easy packing.

This wilting process is one of the most essential points in successful packing. Baskets can be filled without the danger of sweating, molding or crushing the fruit, and will "hold out" in weight without settling. Unless this wilting process is practised, grapes will go to market in second-class condition and bring second-class prices. Pack solidly, selecting bunches that will "mate" well in layering. Many grapes sent to market last year were poorly packed. Let the error be avoided this year.—*Field and Farm.*

Snide Packages.—The practice so prevalent of sending fruits to market in short measure packages is nothing more or less than a device to deceive buyers, and make them pay for what they do not get, and, in an occasional instance, when goods are very scarce, is a success; but the trade has become so accustomed to such schemes that they usually examine the dimensions of the packages carefully and avoid the "snide" stock, except at a greatly reduced price, and the sooner shippers realize this fact the better for all concerned. The cost of package, picking and freight, the labor of packing, nailing and handling a wine-measure case of berries is just the same as an honest dry measure case, and the small amount of berries saved to the grower is largely counterbalanced by the much lower price the dealer is forced to accept when they reach the market, and is aptly illustrated by the ancient bung and spiggot story. The sooner the shippers realize the fact that buyers who are on the market every day are not such idiots as not to know the difference between a peck and a third bushel box, or between a full or short measure case of berries, that they have a great many different lots to select from, that they are usually shrewd business men and close buyers, that they buy with a view to the profit there is in the article, that they are almost universally people that cannot be imposed upon, the sooner they will realize the fact that it does not pay to use "snide" packages, and the sooner the fruit trade will cease to be a "scalping," and become a legitimate business.—E. P. Hollister in *Fruit Growers' Journal.*

Forestry.

TREES FOR AUTUMNAL EFFECT.

THE Kentucky coffee-tree is one of the most attractive of deciduous trees, with its peculiar trunk and branches and its light, feathery, graceful foliage. The broad rounded contours of that loveliest of deciduous trees, the *Cladrastis tinctoria*, *Virgilea lutea*, or yellow wood, increases the variety with curious branching and beauty of yellow, fading foliage.

All kinds of beeches are fine in the fall. The cut-leaved, the purple, and the common American and European beeches are all most effective and green until winter; but the noblest of all is the celebrated weeping beech. Its great gleaming masses of foliage assume all kinds of fantastic shapes and reveal bowers and recesses until the leaves of almost every other tree have taken their depart, ure. The foliage of the American beech *(Fagus ferruginea)* is delicate in finish- and it lies in an arrangement of layers that is peculiarly attractive.

Scarlet is a color almost unknown to the normal foliage of hardy plants. The most familiar example of this rich chord of color is found in the autumns of the swamp, or falsely named scarlet maple *(Acer rubrum)*, and in the common sugar maple. Of all the forms of maples, except the shrubby *Polymorphum* from Japan, these are the only species remarkable for their red color in fall. How beautiful they are, thousands can testify, who have stood entranced before the sugar maples of the hills of Vermont, or the scarlet maples on the banks of the Delaware. Sugar maples sometimes color grandly, especially on hillsides. The scarlet or red maple is the richest in autumnal color of all maples, if not of all trees. It seldom fails during any autumn to change more or less splendidly, and therefore deserves to stand out a single flaming monument in the van of all autumnal color. There is something quite indescribable in the glow and intensity of tint often displayed by this maple. Is it ignorance, or the want of seeing eyes, that causes its lack of employment on the lawn? It is true, the scarlet maple is slower growing than the sugar maple, of less regular and pleasing outline, and certainly less beautiful and satisfactory at other seasons of the year. But in fall, it simply reigns supreme.

Scarcely less beautiful than the scarlet maple are some of the oaks. Many of them, like the Turkey, English, and pyramidal oaks, are grandly effective with their solid dark green tints. But the white, red, and scarlet oaks, American species, all take on the most distinguished and glowing autumnal colors. All oaks are too much neglected in lawn-planting. Whether for form, color or rugged longevity, they are invaluable for ornamental purposes. The golden oak *(Quercus Concordia)*, although too apt to lose its beauty somewhat before the Indian summer, another color than red becomes, by its intensity, almost the

brilliant feature of the scene. Its special peculiarity appears in the fact that it becomes more and more golden all summer, until, in mid-autumn, it stands a bright yellow flame of health and vigor amid the dull and fading tints of fall. It is one of the choicest of recent introductions and holds its foliage late. The Liquid Amber presents the deepest, darkest crimson on its more or less star-shaped leaves. This tree is of smaller size than maples, tulips or oaks, but is one of half a dozen thoroughly excellent autumn trees. It is round headed, has a straight rough stem, and is altogether a very characteristic American tree.—S. Parsons, in *Landscape Gardening*.

GOOD WORDS FOR THE CHESTNUT TREE.

Having for the last ten years been looking after forest-tree growing with a considerable degree of interest, I am now convinced that the chestnut ought to be more extensively planted in the future by our great American people than it has been in the past. An erroneous notion has gone out that the American chestnut is not hardy in the North-West. This is a mistake, as a rule. There are trees here in Marshall county, Ill., that are fifty years old, and seem to be as hardy as the ordinary forest trees of our country. They are bearing heavy crops of nuts annually.

The chestnut belongs to the oak family. It is a beautiful growing tree, with a smooth bark and a long, smooth, beech-shaped foliage that is free from the insect pests. The timber grows very rapidly. It is valuable for fences, railroad ties, fuel, and many other purposes. The stump when cut off throws up suckers that in a few years make trees again.

The nuts are an article of commerce. They usually bring from $5 to $10 per bushel.

The chestnut makes a very valuable food for hogs. It can be ground and made a very valuable food for all other animals and poultry. The chestnut meal can be baked into a good, wholesome, nutritive bread for the human family to subsist on, and thus become a substitute for wheat, corn and buckwheat.

I hope that the nurserymen of our great nation will procure nuts and grow chestnut seedlings on a large scale, so that they can be sold cheap, and planted for lawn, park, street and roadside trees.

Our railroads can plant them on each side of their tracks. As soon as they are old or large enough they can be cut for ties. The stumps will sprout and produce another lot of ties. The tops can be used for fuel to keep up steam, and thus create an era of cheap railroading in time. These trees will also have great quantities of nuts for the market, annually giving employment to a great many laborers in gathering them.—A. H. Gaston *in Prairie Farmer*.

The Garden and Lawn.

HARDY ROSES.

If the roses are planted in the fall the operation should not be performed until the foliage has almost fallen from the plants. When planted, a few inches of the points of the shoots may be trimmed off and the very weak shoots cut clean out leaving only two or three of the strongest. Then give the bed a good mulching of short manure, and as soon as cold weather approaches a thick covering of leaves—if they are to be had—should be applied, securing them with brush or otherwise. If no leaves can be had branches of evergreen stuck thickly among the plants will prove of great benefit. The ensuing spring, say end of March or beginning of April, the leaves or other protection should be removed, the bed spaded lightly over and the plants pruned back to five or six eyes.

After the first year the pruning may be managed as follows :—Cut away all the old wood in the fall, just before making the plants snug for the winter, and thin out the new growth if necessary, leaving from three to four or more shoots according to the strength of the plants. In the spring after uncovering—and do not be in too much of a hurry about the latter—the shoots may be pruned back to from six to twelve eyes, according to the strength of the shoot—the rule being, the stronger the shoot the more eyes may be left. For it should be always borne in mind that the more wood you leave the more work you assign the plant for the coming season, and the work should be in every case in proportion to the strength of the plant. This is the only general rule that can be given as regards pruning, though there are some other features connected with it that can only be learned by experience.

The Rev. S. Reynolds Hole, in his incomparable work on roses, says:—"He who would have beautiful roses in his garden must have beautiful roses in his heart. He must love them well and always. He must have not only the glowing admiration, the enthusiasm and the passion, but the tenderness, the thoughtfulness, the reverence and the watchfulness of love. He is loyal and devoted even in storm-fraught or sunny days. Not only the first on summer mornings to gaze admiringly on glowing charms, but the first when leaves fall and leaves are chill to protect against cruel frost. To others when its flowers are faded it may be worthless as a hedgerow thorn : to him in every phase it is precious."

It is a great blessing for any busy man to have some recreation—something to break in on the monotonous treadmill of everyday cares and troubles, and those whose tastes lie in the right direction will find the culture of roses admirably adapted to this purpose.—*Western Stockman.*

HOW TO FORM A PERFECT HEDGE.

To have a hedge do its best, whether deciduous or evergreen, it should be pruned twice a season. The first pruning should be done before the growth is stopped, the second about the close of summer, after the length of growth has been completed for the season. On the method Joseph Meehan writes as follows in *Practical Farmer*: A hedge to be perfect must be broader at the base than at any other part. Summer pruning, that is, the first one, is mainly to thicken the hedge and strengthen the base. To do this, the top and most of the upper branches are clipped off, then while the lower ones are touched but little in an old hedge and not at all in a young one in which the shape has not been well formed. As soon as the tops are cut away the sap flows to those remaining, greatly invigorating them. In old hedges where shape and bushiness have already been attained, the whole of the hedge may be trimmed back to thicken it, but let the severest cutting be at the top. For every branch cut off a half a dozen new ones form, so that in time a hedge becomes so dense that a bird can hardly fly through it. After the first cutting there will be more growth made, and this is allowed to grow on as long as it will. When all growth has stopped, which will be in September in the Middle States, the hedge is gone over again, and cut clean into a good shape, which should neither be too round nor too pointed. In connection with this it may be said here that single trees should be pruned in the same way that the hedge is. Bushiness comes from stopping the leading shoots before they are done growing. Pruning in winter acts the other way, encouraging an extra strong top growth.

Some fine samples of grapes have been sent us by Mr. A. M. Smith, of St. Catharines. The following are the varieties, viz.: Eaton, Moore's Diamond, Ulster Prolific, Poughkeepsie Red, and Geneva.

The Eaton is a very fine large grape, of the same type as the Concord. It seems to us to be a remarkable grape and one that must commend itself to every vineyardist, as the finest black grape, at least so far as size, appearance and productiveness are concerned. Unfortunately, however, it does not equal the Concord in quality.

Moore's Diamond is a very promising white grape, and a competitor with the Niagara; it is sweet and spritely and the pulp is very tender.

Poughkeepsie Red also commends itself as a most delicious little grape, after the style of the Delaware, larger in bunch and berry, but not as good in quality.

New or Little Known Fruits.

BURBANK JAPAN PLUM.

SIR,—Among the very promising new fruits, and one that seems to have come to stay, is the Burbank Japan plum. Here, in Western New York, it is hardy, of fine quality, very beautiful in appearance, and productive beyond anything I have seen, and, withal, has a foliage that seems perfect. Mr. H. E. VanDeman, Department of Agriculture of the United States, commended it highly to me a few years since, and expressed his opinion at that time, that I would find it especially adapted to this climate.

S. D. WILLARD, *Geneva, N. Y.*

OWEN SOUND BEAUTY PLUM.

SIR,—I send you by express samples of the Owen Sound Beauty plum. I sent you some of these plums in 1888 and since that date the tree has been bearing fruit, and seems to improve with age. It is a seedling of No. 1 plum, of which you gave a description in the October number of your journal for 1889. The tree is a strong, healthy grower, a heavy bearer, and this year I had a very large crop from it. The fruit hangs well to the tree and is a freestone. The flesh resembles that of a peach more than a plum, and makes an excellent preserve, equal to the peach to my taste.

R. TROTTER, *Owen Sound, Ont.*

This plum was described on page 259, Vol. II, and we have little to say farther, except that it bears out all that was then said of its quality. In form, however, these samples incline more to the oblong than to the globular. Its free stone, excellent quality, and lateness of ripening, the samples coming to hand in good order on the 10th of October, seem to commend it to planters.

A BEAUTIFUL SEEDLING APPLE.

SIR,—I send you three beautiful apples, grown in this locality, which I believe are seedlings.

R. LEWIS, The Rectory, *Maitland, Ont.*

Truly this apple well deserves the title of *Beautiful*, for we never saw any apple that surpassed it in richness of coloring. Even the Red Astrachan, which is so much admired, is its inferior in tints of color. Then it possesses excellence of quality as well, and these characteristics unite in making it deserve the very highest place as a dessert apple.

Description.—Fruit, medium to large, roundish oblate, with one quarter considerably enlarged. Skin, pale cream, splashed and shaded with pink, turning to crimson on sunny side, which in some samples completely covers it; obscurely blotched with markings of dark carmine. Stalk about 5/8ths of an inch in length, inserted in a deep, evenly formed cavity. Calyx closed, set in a basin of moderate size and depth. Flesh white, streaked with red, tender, juicy, aromatic. Quality best. Ripe October and November.

TWO HARDY APPLES.

Two samples of apples, which are seedlings grown in the Province of Quebec, have come to hand from Mr. Dery, of Mont. St. Hilaire. Both are grown from the seed of American Baldwins, and resemble each other so much that only a connoisseur could distinguish between them. The one called Dery's Seedling is, however, more highly colored. It is said to be a good bearer, and the fruit keeps until June in good condition. The other is called Alexis Baldwin, and also keeps until June, but with dry spots at the core.

The trees from which these two apples were gathered are each of them seventy years of age, and still produce heavy crops; all this speaks very highly concerning the hardiness of the tree, and the keeping qualities of the fruit. The apples are not sufficiently mature yet for us to speak of their quality.

THE BESSEMIANKA PEAR.

Dr. Hoskins writes in the *Orchard and Garden* that at last a Russian pear, worthy of cultivation, has been found. These Russians have been in cultivation for nine years in America and, so far, no one has been heard of who can bite into a ripe specimen of any one of them. But it now appears to be a well established fact that the Bessemianka is an exception. Mr. A. Jack, of Chateauquay Basin, Que., has fruited it, as well as Prof. Budd, of Iowa, and both report that the fruit was of such good quality that it was all stolen and eaten even before maturity. This year the Doctor has fruited this variety in his own garden. It ripened by the 5th of September, and he classes it as the only one of the iron-clad pears with which he is acquainted, which possesses a very good dessert quality. The flesh is buttery, something like the Bartlett in flavor; in size, small to medium; color, green, ripening to a yellowish, without any redness or russet. The flesh is white and very juicy; unmistakably it is a fine dessert pear, and one which bids fair to be a very useful fruit for the cold north.

HOSKIN'S SEEDLING WINE GRAPE.

Sir,—I send you three bunches of a seedling grape which came up between an Alvey and a Delaware, and is five years old. It bore a few last year, and this year has fifty bunches on twenty-five feet of wood. It is rather late, and only suitable for wine. Its chief fault is having a few green berries scattered on every bunch, after the others are colored. Probably it would ripen earlier and more evenly in a warmer climate. The bunches I send you are the largest and medium size. The wood ripens well.

A. Hoskins, *Toronto, Ont.*

This grape might prove valuable for wine making, but the quality is not good enough to make it desirable for any other purpose. The largest bunch weighed ten ounces, and the berries upon it were remarkably close. In size and color it resembles the Clinton, but does not equal it in quality.

The Canadian Horticulturist

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

The Winter Meeting of the Ontario Fruit Growers' Association is to be held in the City Hall, Hamilton, on the 15th, 16th and 17th of December next. The meetings in this place have always been full of interest, because the place is accessible to a larger number of fruit growers than any other in Ontario. There will be many interesting subjects discussed, and we, therefore, urge upon all members and readers of this journal, who possibly can do so, to make it a point to be in attendance. Everyone is at liberty to propose questions for consideration and these will be answered, as far as possible at the meetings, by persons who are the most capable. Questions sent in for that purpose to the Secretary, in the meantime, will be entered on the printed programme. There will also be an exhibit of new and interesting fruits, and we ask all fruit growers to lay aside anything interesting and bring it with them to the meeting. The programme will be given in our December number, and copies, in circular form, will be sent to all who may apply for them.

Growing Roses.—Mr. E. Sunmey says in the *American Agriculturist* that the autumn or very early spring is the best time to plant dormant, hardy roses, as no plant suffers so much from late spring planting as the rose. Good strong two-year old plants, of the hardy class, are the best for out-door culture. A great many have been discouraged from growing roses in their gardens through buying from florists small pot plants which need more tender care than amateurs are able to give them. Roses should be planted two feet apart in open ground Heavy loam or clay soil is preferable, but, with special fertilizing, they may succeed on sandy soil.

Roses, for the most part, succeed best on their own roots, but there are some desirable varieties which do better on other stock. In case of such plants, great

care must be taken that suckers from the roots do not grow up and take the place of the variety which has been budded. Among some particularly good sorts are mentioned, Baron Prevost, Comtesse, Cecile de Chabrillant, General Jacqueminot, Mrs. John Laing, M. P. Wilder, Xavier Olibo, Captain Christy, Paul Neyron, Gabriel Luizet, Achille Gounod, Mabel Morrison, Madame Plantier, White Crested Moss, Gem of the Prairie, and the Japanese roses, rugosa-rubra and alba.

Winter protection is wise, even with hardy varieties, and this may be accomplished by covering with strawy manure or evergreen boughs.

The best time for pruning roses is in March. Strong growers like General Jacqueminot, Magna Charta, and Mrs. John Laing, need the least pruning simply cutting the last season's growth about one-third to one half an inch together with a little thinning, being all that is necessary. Weak growing kinds, such as Baroness Rothschild, Captain Christy, and Xavier Olibo, which are usually budded on other stocks than their own, should be cut back more severely removing as much as two-thirds of the previous year's growth, together with the weaker canes.

NITRATE OF SODA.—A writer in *Garden Work*, an English publication, speaks of the strikingly stimulating effects of the use of nitrate of soda on garden crops. The crops which had been dressed were extremely luxuriant, and the observer could tell to an inch how far the dressing had gone. Peas, potatoes and other crops to which the nitrate was applied were in remarkable health and color. The amount applied to the farm and garden crops was at the rate of 175 pounds to an acre.

MOSS ROSES are highly commended in the same journal. These are coming into fashion now, and everyone, in making up an order for roses, ought to include a half dozen mosses. Many people are ignorant of the fact that there are several varieties of moss roses and among them the most commendable are : Old Moss, blush pink and well mossed ; Little Gem, a diminutive moss rose, and one that should be grown by all ; it forms thick bushes which are covered with beautiful crimson flowers ; White Bath, no collection would be complete without a white variety and this is the best ; Crested Moss, pink, with exquisitely crested buds, a fine grower.

Question Drawer.

FLEMISH BEAUTY IN VICTORIA COUNTY.

SIR,—I send you two samples of Flemish Beauty pear as grown in my garden in the ordinary way, the tree bearing a medium crop of fruit, all large and clean. How do these samples compare in size with Flemish Beauty as generally grown? The two weigh respectively 12 and 13 ounces.

My Glass Seedling plum trees have immense crops this season. The trees were literally broken down with fruit. We sold over 100 pails off it at from 40 to 60 cents per pail. I mention this to show prices and the productiveness of this plum in our section.

W. H. ROBSON, *Lindsay, Ont.*

The samples of Flemish Beauty sent by our correspondent are larger and finer than the average samples of this variety, as generally grown. Under exceptional circumstances, we often get pears of this variety equal to the samples of Mr. Robson's, but it is not a common thing, as a rule. Indeed, the Flemish Beauty, in the Niagara district, has, of late, been so troubled with the scab and with cracking, that it has been utterly worthless; and this pear has been entirely discarded by planters. Farther north, however, it appears to be one of the best varieties to plant, being hardy, productive and clean.

FORESTRY IN BRITISH COLUMBIA.

SIR,—Professor Mills of the Ontario Agricultural College to whom I had written for information on the subject of the growing of hardwoods, has referred me to you as one who is likely to put me in the way of obtaining the desired information.

This province is destitute of such trees as hickory, walnut, ash rock maple, etc., and what I wish to know is embraced under the heads which follow.

J. R. A. *Victoria, B. C.*

We have referred the questions to Mr. T. M. Grover, of Norwood, Ont., who has had more experience in forestry in Ontario than any one with whom we are acquainted. We give his replies under each head:

A.—How long do they take to attain marketable value?

It will be eight or ten years for any of these trees to become valuable for factory work. Ash and rock elm would be the earliest in the market as second growth hardwood; maple as fuel at ten years; hickory, as a sapling, is very valuable at from ten to fifteen years; walnut comes in at a later age, twenty or forty years being needed to furnish good wide boards for cabinet work; white ash and elm are the first choice, and will likely grow more rapidly in British Columbia than in the east.

B.—Value at different ages?

Ash and elm, also hickory, ought to be five inches in diameter in ten years and are worth two cents a foot of the length, for waggon stocks. As hoop staff

they would sell much sooner. The value is not certain, but very nearly as much.

C.—Cultivation?

Plant in old, tilled, clean land. For amateurs it is safer to buy two year-old seedlings, as the difference in cost will not be so great as the extra cost of the cultivation of small seedlings. Plant them four feet apart each way, and keep the weeds down thoroughly for three years.

D.—Soils best suited?

Sandy loam is the best soil, where easily worked with a cultivator.

E.—How many trees to the acre?

At four feet apart there would be about 2,700 trees to the acre.

Except for experienced planters, the seedlings, which can be got from wholesale nurseries in the United State at from $1.00 to $8.00 per thousand, are much more satisfactory than planting tree seeds, and the cost of handling and transplanting in the small way, as well as the trouble of keeping the very small trees from the pressure of the weeds, will be more than the nursery prices.

PEAR LEAF BLISTER MITE.

SIR,—You will find enclosed some pear leaves which I sprayed with Paris green twice this season. Did this cause their turning brown, or is it a leaf blight?

GEORGE H. NIXON, *Hyde Park, Ont.*

Reply by Prof. James Fletcher, Entomologist, Experimental Farm, Ottawa.

The leaves of pear are, as you suggest, badly infested by the pear leaf blister mite (Phytoptus pyri), which is an extremely small, elongated mite, that forms blisters like galls on the leaves. In each of these galls there are several of the mites. There is a small hole in the centre of each gall, through which the little creatures make their exit. The eggs are laid by the females inside the galls, and hatch there. The young mites remain there for some time and then come out and work their way into the tissue of the leaf at some uninjured spot. They increase rapidly, and eventually do much injury to the tree. The mites live within the galls until the time the leaves fall in the autumn, when most of them migrate to the leaf-buds at the ends of the twigs, where they pass the winter.

This insect is one of the most troublesome to combat. Prof. J. H. Comstock (Cornell University Bulletin, No. 23) has written the most extensive article on this continent, and in Australia it has been treated of by Mr. C. French, in his "Handbook of Destructive Insects of Victoria."

Probably the best remedies are close pruning in winter or early spring, followed by a thorough syringing with kerosene emulsion. An effort should also be made to burn all the leaves which fall in autumn. I may mention that the

figure engraved on page 253, from a *very rough* outline drawn from memory and given in a letter of mine to Mr. J. K. Michael, bears very little resemblance to the real insect. The four horn-like objects in the front portion of the body are meant for four legs and should all come from beneath the body. Where an eye-like spot has been put was meant for the middle of the back.

EVAPORATORS.

SIR,—Where can I visit an evaporating establishment, the more modest in its dimensions the better?

G. M. AYLESWORTH, *Collingwood, Ont.*

Reply by L. B. Rice, Port Huron, Mich.

I know of no place where a person can see the whole work of the evaporating business as well as in Wayne Co., N.Y., just at this season; and I know of no place in Wayne county that contains a greater variety of evaporators than at my old home in Sodus. Here one will find the small one with the capacity of ten bushels a day, up to one with a capacity of five hundred. Here, also, one will find employed every conceivable method of heating, and in the large ones the hot air tower and steam pumps, so the comparative merits will be observed.

I do not think the one illustrated in the October number, as practical as the Mason, and not nearly as cheap. Besides this, the Mason has no brick work to keep it in one place, but it is portable. I can give you the plans for building it if you wish.

[We will gladly publish Mr. Rice's description the Mason Evaporator.—ED.]

SUBSTITUTING VARIETIES.

SIR,—I have enclosed samples of pears and apples for names. The trees were to be true to name and there was to be no substituting, but I find that a tree planted for Urbaniste is bearing Keiffer's Hybrid, one planted for Josephine de Malines is bearing Howell, and so on. Of the samples sent you, 1 and 4 were sent to me for Doyenne Boussock, and 2 and 3 for Beurre Bosc. The apples were introduced here from Rochester about thirty years ago and no one knows the name. The quality is first class for cooking, with a faint blush in the sun, and white in the shade with small black specks. They are falling off now (August 31st).

GEORGE H. NIXON, *Hyde Park, Ont.*

It is very disappointing to buy a certain number of varieties of fruit and, after waiting years for them to bear, find that other nameless varieties have been substituted. This kind of thing no doubt accounts for so large a number of misnamed varieties of fruits throughout the country. The apple is probably the Hawley, a first class variety, but with one fault, that it keeps so short a time after gathering. The pears are scarcely matured enough for determination, but No. 1 resembles Winter Nelis; No. 2, Beurre Diel; No. 3, Belle Lucrative; and No. 4, Doyenne Boussock.

WOVEN WIRE NETTING.

Where can the woven wire netting be bought the cheapest in Ontario? I see some get it for less than one cent per square foot. A.

Reply by B. Greening, Wire Co., Hamilton.

We sell a two-inch mesh woven wire netting, made of 19 galvanized wire, at the price of one cent per square foot. Our goods can be purchased through the hardware trade of Canada, but, if not stocked by any local dealer, we will supply direct at that figure.

BONE MEAL AND NITRATE OF SODA.

1. Where can bone flour be bought, and at what price? 2. Where can nitrate of soda be bought, and at what price?

G. E. BALLARD, *Listowel.*

Reply by T. H. Carpenter, Winona.

We have never purchased bone meal alone, always a complete fertilizer containing ammonia, phosphate and potash as principal ingredients, and what nitrate of soda we have gotten has also been bought from the Smith's Falls Standard Fertilizer and Chemical Co.

Open Letters.

FALL FERTILIZERS.

Potash—Phosphoric Acid—Nitrogen.

Potash and *Phosphoric Acid* should be first on this fall: these two things are slow to dissolve; and are not liable to be lost or washed away like certain forms of *nitrogen*, which easily evaporate and waste.

Potash in the form of potash salts or wood-ashes.

Phosphoric Acid in the form of ground bone or plain phosphate, both these should be given liberally now in the fall, and wherever possible harrowed and worked in, so that with the snows and rains of winter and spring they may become dissolved and mixed well with the soil, and driven down to the roots of the trees and vines, so that the roots may find the necessary potash and phosphoric acid, immediately after the winter rest. The trees and vines do not have half a chance if the potash and phosphoric acid is put on in the spring, for it has not had time to dissolve and become available for the first growth.

There are certain forms of nitrogen, like *nitro-bone-phos.*, which could be given with great advantage in the fall along with potash salts. But as a rule, it is a waste to put quick acting nitrogen on in the fall, such as nitrate of soda, etc.

Nitrogen should therefore be put on *in the spring* and also, if at all possible, *during growth*, so that the nitrogen may get down to the roots with the very first moisture that reaches them.

Stable and all available manures should be carted on before the snow goes, so as to get the benefit of spring rain and melting snow, so that as the nitrogen is washed out it may be carried at once to the roots and be available for the very first growth.

Fruit growers who doubt the necessity of feeding their orchards and vineyards take great risk. They should at least pick out a few trees and vines and experiment with them,

cultivating well, and putting on a generous dressing of potash salts or wood-ashes now, with ground bone, or bone meal, working them well in, and then in the spring give sundry doses of nitrogen in the shape of liquid manure, or dissolved nitrate of soda or sulphate of ammonia.

ALFRED BOYD.

Toronto, Oct. 21st, 1891.

TOMATOES.

In reference to tomato rot, in October number, mention is made of Mikado as subject to rot. In my garden the rot commenced with Mikado plants that were lying down, and on the poorest ground—wet clay. It spread through the several varieties that I had—not so bad on those on wire trellises, though they had most manure under them. I would not plant Mikado with other varieties again, without further experiment.

L. B. RICE.

Our Markets.

MONTHLY MARKET REVIEW.

The reports received up to the 1st of November appear to be encouraging with regard to the prices which we may expect for our winter apples. The fact is, that the crop is much shorter than it is supposed to be by shippers in our central markets, who have been led astray by the enormous amount of summer and fall apples which have been pushed into the market.

The prices seem to be advancing in Great Britain for our best fall apples. American apples have been going forward in considerable quantities to Liverpool, larger than in any corresponding week since October, 1888, in which year there was an enormous crop. But these are inferior to our Canadian apples, and, as the supply of Canadians is so limited, the prospect is they will be much in demand for storing for winter use, both in this country and in Britain.

The apple which is bringing the highest price is the King. This variety has been bringing all the way from 18/ to 28/ in Liverpool, and will no doubt be more and more sought for as its excellent qualities become known.

Baldwins are bringing, in Liverpool, according to a cable received October 26th, 15/ to 18/; Greenings, 13/ to 16/; Golden Russets. 17/ to 20/; Spys, 12/ to 15/; Ribstons, 17/ to 20/.

A cable from Glasgow on October 25th, quotes Canadian apples as follows: Kings, 21/ to 25/; Blush, 17/ to 20/; Greenings, 15/ to 18/; Snows, 16/ to 19/.

In our home markets apples are beginning to be in more active demand, and are selling from $2.00 to $2.25 for good winter fruit, but there is no doubt that the foreign demand will soon cause the prices to advance considerably both in Toronto and Montreal. Even in Buffalo apples are quoted as worth in the orchard from $1.50 to $1.75, and fancy apples at $2 a barrel.

The time for export by Montreal will soon be past, as the steamers cease to run from that port after the middle of November, and any shipments after that date will need to go by New York or Boston. The freights from Montreal are 3*s*. 3*d*. a barrel to Liverpool, and 3*s*. 6*d*. to London, Glasgow, Aberdeen and Bristol.

The first Nova Scotian apples reached London, England, in the week ending October 10th. The Gravensteins were very fine quality, being bright, clear and well colored. No. 1 grade realized 18*s*. to 21*s*. a barrel, and a few fine Ribstons brought as high as 30*s*.

A letter from a Liverpool firm, dated October 10th, quotes Ribstons and Kings 24*s*. to 25*s*., and various kinds 14*s*. to 20*s*., adding, "There is strong demand for large fruit, especially if colored, but with heavier arrivals we anticipate easier prices.

EDINBURGH APPLE MARKET.

A cable from Wood, Ormerod & Co., Edinburgh, Scotland, dated November 2nd, gives the prices of Canadian apples as follows :—Kings, 18*s.* to 22*s.* ; Greenings, 13*s.* to 16*s.* ; Spys, 15*s.* to 18*s.* ; Baldwins, 15*s.* to 18*s.*

LIVERPOOL APPLE MARKET.

A Liverpool firm cables, under date of October 31st, the prices of Canadian apples in that market as follows :—Kings, 18*s.* to 21*s.* ; Greenings, 11*s.* to 14*s.* ; Spys, 12*s.* to 15*s.* ; Baldwins, 13*s.* to 16*s.* Prices are forced up, owing to the few apples being landed in time for sale. There appears to be a demand which still take incoming receipts, without materially altering present prices. Market closed with a steady tendency and good prices.

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Address either office,

The Rural New Yorker, New York.
The Canadian Horticulturist, Grimsby, Ont.

Our Book Table.

LINDENIA—Iconography of Orchids, October, 1891. Published by Lucien Linden, 100 Rue Bellaird, Brussels, Belgium. This magnificent work on Orchids, comes to us in monthly parts, each containing four large quarto full page chromos of beautiful orchids, with a monograph on each. The plates are superb; the history and description of each orchid is both interesting and reliable; the execution of the whole work unique. We heartily commend it to all lovers of orchids.

MEEHAN'S MONTHLY, for November, gives a beautiful plate of Lepachy's Columnaris, a curious flower found along the Missouri river. It contains also many interesting articles under the heads of "Wild Flowers and Nature," and of "General Gardening." This work of Mr. Meehan should be in the hands of everyone who loves wild flowers, or who has the slightest botanical taste. Published by Thos. Meehan & Sons, Germantown, Philadelphia.

FRUITS AND FLOWERS for September contains many good articles, such as the "Forestry Problem," "Notes on the Walnut," "A Pretty Window with Annuals," etc. It has colored plates, after the style of our own Journal.

CATALOGUES have come to hand from Wm. Stahl, Quincey, Ill., giving testimonials on the benefits of spraying; and from Messrs. J. A. Simmers, 147 King Street East, Toronto, giving lists of Flowering Bulbs for Autumn, 1891.

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The Canadian Horticulturist.

A Journal Devoted to Fruits Flowers Forestry

EDITED BY L. WOOLVERTON, M.A.

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HALL'S CLIMBING JAPAN HONEYSUCKLE.

THE

Canadian Horticulturist.

VOL. XIV. 1891. No. 12.

HALL'S JAPAN HONEYSUCKLE.

CLIMBING plants about the house and lawn are only appreciated by a few. The naked pillars of porches of many houses contrast very unfavorably with the beautifully draped verandahs and walls of those few which have been clothed with nature's own costume. Not so great is the contrast between a drawing room hung with beautiful curtains and one entirely bare of drapery. Even the trunks of old trees may be festooned with elegant creepers, and old posts may be tranformed into superb pillars. We have in mind a telephone post which gave offence to the near residents when first set, but which could not now be removed with their consent. Nature has robed it from pedestal to capital with the Virginia creeper, which is beautiful at all seasons, and, in the autumn, takes on gorgeous hues, which are the admiration of all passers-by. This creeper is a native of Ontario and may easily be transplanted to the garden. Besides, we have many others growing wild, which, without expense, might be made to adorn our homes, as, the climbing bitter-sweet, the wild frost grape and two species of climbing honeysuckles. These are Lonicera parviflora, or Small Honeysuckle, which has a yellowish purple corolla, and is found on mossy banks; and L. Hirsuta, or Hairy Honeysuckle, which has a greenish yellow corolla and is found in damp thickets.

In a paper read before the Massachusetts Horticultural Society by John G. Barker, we find the following interesting reference to this class of plants :

"Whether trained to festoon the parlor window, or the conservatory, the side of the piazza, or running over and covering some old decayed tree, or some unsightly stone wall or rock; whether adjoining the grounds of the rich merchant, or the laborer's humble cottage, or whether their aid is sought in screening an arbor from the rays of the hot summer sun—in any and every one of these cases, what class of plants is there whose beauty affords more satisfaction?

Not a single wall or fence, especially if visible from the house, not a trunk of any old tree, or, in fact, any object that can be made capable of supporting a vine, should be left uncovered. The free use of climbing plants always imparts, wherever you meet them, on some lofty tree in the woods, or at the cemetery entrance, an air of friendship and freedom, and if they receive a larger share of skill and attention than has heretofore been given them, they repay in beautiful flowers and foliage and grateful shade the time spent in their cultivation."

On page 147 of Vol. 12, we introduced to our readers a plate of three of the most popular of the cultivated varieties of climbing honeysuckles, viz., Lonicera Flava, or Yellow Trumpet; L. Pericylmenium Belgica, or Monthly Fragrant; L. Sempervirens, or Scarlet Honeysuckle.

We then promised that, in some future number, we would give a colored plate of *Lonicera Halleana*, a promise which we now redeem; and, more than that, we have arranged for a supply of plants from a Canadian florist for those of our readers who desire to have one.

In the opinion of Mr. Henry Ross, of the Massachusetts Horticulturai Society, this honeysuckle is one of the very best of its class. Of all varieties it is the best bloomer, and its leaves are so persistent that it is almost evergreen. Its flowers, which appear in great profusion from July to December, are very fragrant. In color they are pure white, changing to yellow.

THE LAWRENCE PEAR.

Until the last few years the Lawrence pear was generally considered the best early winter pear; the tree is vigorous and healthy, being almost exempt from blight, and it bears regularly and abundantly. The fruit is of medium size, nearly always fair, and the quality is fine, though it does not rank as best, the flesh being only partially melting. For these reasons this variety has been grown extensively for market for a number of years, and we believe that in many localities it is still regarded as one of the most valuable early winter varieties. It is also justly esteemed as a dessert fruit, the size and quality being entirely satisfactory to the amateur.

In some sections, however, where the Anjou (of which the late President Wilder said if he could have but one pear it would be that variety,) has become known, it has superseded the Lawrence, on account of its large size, handsome appearance, and superior quality. The Lawrence matures the latter part of November or early in December, and is ready for market and can be disposed of before the Anjou. There is room for both and both are valuable..

W. C. BARRY.

AMERICAN POMOLOGICAL SOCIETY—II.

OST of the important points brought out at the meeting have now been so widely quoted, that only a brief *resume* will be given, emphasizing the facts elicited likely to be of greatest interest to the readers of the Horticulturist. Mr. J. H. Hale, in an interesting talk on small fruit culture, spoke of the necessity of thorough preparation of the soil before planting, and the very slight danger there was of enriching it too highly. Wood ashes for their potash, bone meal for its phosphoric acid were useful and practical commercial fertilizers, and used extensively in Connecticut. For weakly growing plants use nitrogenous manures. As a rule, too many plants were grown to the acre. His preference was to grow them in hills six feet apart each way, giving thorough cultivation with heavy manuring. It paid him, in marketing small fruits, to grade them as we do apples and pears, and to use every possible means to place them upon the market in as attractive a condition as possible. Little attentions to the appearance of the fruit, when shipping, often counted heavily in the receipts. Mr. Lovett, of New Jersey, read a paper on "New and Promising Small Fruits." Among strawberries, Cloud, Osceola, Lady Rusk, Shuster Gem, Edgar Queen, Eureka, Mrs. Cleveland, Parker Earle and Gandy were favorably mentioned. Of black cap raspberries, Michigan, Palmer and Older were recommended, and North Star among the new currants.

An interesting paper was presented by Prof. B. T. Galloway, Chief of the Pathological Division of the Department of Agriculture, giving the latest and best information in the treatment of plant diseases. Showing by statistical proof that the damage to the fruit interests of the United States in 1890 amounted to over ninety millions of dollars, he went on to give the various remedies which are now becoming common practice in the economy of the wide-awake fruit growers. The pear leaf blight, so injurious to fruit stocks, can be almost entirely controlled by six or seven applications of Bordeaux mixture. Nurseries containing not more than 50,000 stocks can be managed with a knapsack pump, where they are grown in larger quantities a horse and force pump are necessary, and this pump can be so rigged as to spray four rows at a time.

For powdery leaf blight of apple and cherry, the ammoniacal solution has given satisfactory results when applied early. In treating apple scab, the professor found the ammoniacal solution and modified *eau celeste* equally satisfactory, but experiments had demonstrated that three sprayings, commenced early in the season, gave as good results as five or six later sprayings, and concluded that with even moderate care the disease could be prevented at a cost of from ten to twenty cents per tree.

The results of an exhaustive study, covering several years of the disease known as peach yellows, were given by Dr. Smith. His efforts in finding a remedy so far have been entirely futile. The whole amount of our knowledge may be summed up thus: 1st. Direct cause unknown. 2nd. Disease is transmissable. 3rd. No remedy yet discovered. His experiments prove very conclusively that no method of soil treatment will give immunity.

Dr. Riley, in contrasting the efficacy of the arsenites as against the old jarring method in combatting the curculio, stated that the number killed was about equal with the difference in labor, much in favor of the arsenites. Then in cases of trees with foliage sensitive to injury, as the peach and plum, the danger could be entirely averted by the addition of lime to the insecticide, though it might, in a slight measure, lessen its effectiveness. In the case of apple maggot, no available remedy had been devised except the destruction of the fallen fruit. The application of all fungus and insect remedies in as fine a spray as possible was urged. The best nozzle for this purpose is the Cyclone or Vermorel Improved

A bright and interesting paper, by Chas. W. Garfield, of Michigan, on "Local Problems in Pomology," impressed the thought that although a few fruits were almost universal in their climatic range of adaptation, yet the greatest successes were attained where orchardists studied closely their local conditions, and after testing carefully a number of varieties planted largely of those which succeeded best on their own soil; "If you are unable to test or cannot afford the time, then observe closely the work of your nearest neighbor in similar lines."

In a paper on "Commercial Peach Growing," Mr. Taylor, of Michigan, recommended a sod turned under the previous year as good preparation of the soil for a peach orchard, this, of course, being brought into a fine state of mellowness by cultivation before planting. Trees must not always be chosen for the fine quality of fruit, as these are often most unproductive. Plant with a view to a succession in time of ripening. Trim tree to a whip and cut back in spring to form a head. Cultivate up to August 1st. Corn is a good orchard crop the first and second years. Thorough cultivation will lessen the amount of fertilizers needed. A long list of fruits was given by Mr. Vandeman, under "Novelties in Pomology." The following are a few which would seem to be of greatest value to Canadian planters: Apples—North Western Greening and Windsor, both of Wisconsin; season, winter. Lacon and Garfield, winter apples from Illinois; also Hennepin, grown by A. H. Gaston, of Lacon, Illinois—a winter fruit, promising for market. Whinney, originating with Geo. J. Streator, Garretsville, Ohio, spoken of as an exceedingly attractive dessert apple of fine quality.

Among the Japanese plums, Mr. Vandeman recommended Botan, Kelsey and Burbank as being decided acquisitions to the peach growing belt. Burbank was spoken of as taking the lead of the seedlings and sports of Prunus Americana—specially valuable in the North—nearly all originating in the Mississippi Valley. Chas. Downing, Hawkeye, Cheney, Hudloff, Gaylord, Hopp and Rock-

ford were recommended to planters. These have been on trial at Ottawa for a year, and came through last winter without injury. As attention has been directed already to the small fruits likely to be useful in Canada, further mention to varieties of probable value to the South is omitted.

JOHN CRAIG.

Experimental Farm, Ottawa.

FRUIT AS FOOD.—Mr. L. Pasche, of Bryson, Que., sends us the following on this subject, from *Cassell's Magazine:* Now, I will tell you what I claim for fruit as food; that is, for fruit as a complement of one's daily diet. First, that it is exceedingly palatable; secondly, that it causes, owing to this very palatableness, an increased flow of saliva; thirdly, that it thus assists us in digesting other, both bread and meat; fourthly, that fruit is itself easily assimilated by the system; fifthly, that it keeps the system free and in good working condition; sixthly, that from its acids, salts and essential oils the blood is purified and disease germs destroyed; and, seventhly, that from its saccharine matter the body is nourished and the animal heat kept up. It would seem like a paradox to say that fruit both warms and cools the body, but such is the case, in summer its acids temper and equalize the heat, in winter its sugars warm. Sugar and acid, in fact, are so equally balanced in this food, formed in the great laboratory of nature, that neither preponderates unduly or to the detriment of the other. We may take the testimony of birds as to the healthfulness of fruit. And who so bright, cheerful and happy as they? The blackbird knows well what to treat himself to in the sweet summer time, and flutes all day in the groves and the greater part of the night as well; yet in winter, cowering for shelter under the dwarf pine trees, he does not let down his heart. On the contrary, he is content if he can scrape up a few grub worms from among the withered leaves and obtain a hip or a haw to assist in digesting that worm. The Arabs form a good example of a nation that to a large extent lives on fruit. We are apt to claim courage as characteristic only of the British soldier. This is simply our insular ignorance and arrogance. Who can be more brave than the Arab, or who possess more *eclat* or dash?

GROWING CELERY.—There has been many ways suggested for blanching. It is said that in the old world, where first-class celery is desired, instead of burying up the plant in the earth, they simply tie up the leaves, and then wrap them in coarse brown paper. It is said that much better celery can be obtained this way than by any other method of blanching.—*Meehans' Monthly for November.*

SOME time before winter sets in, dig up and pot for winter forcing some of the early flowering shrubs. The golden bell, deutzia, spiræa, yellow jessamine, Persian lilac and Japan snowball, are among those that force well. The earlier they are dug up after September, the better rooted they become by the time forcing is commenced.

OUR BELOVED CANADA.

NOTES FROM A FRUIT-GROWER'S STANDPOINT.

My country, of thee I sing,
Land of the golden fruit,
Of herb and grain and root,
Of thee I sing.

Land of the crystal spring ;
Of furrowed field, of lake expanse ;
Could I thy fame enhance,
Of thee I'd sing.

THE Canadian has a rich inheritance in the land that he possesses. In primitive days he sang of his inheritance as the land of forest and river and lake ; and with this theme was inseparably associated the woodsman's axe. In patriotic sentiment it has been the land of the beaver and the maple leaf. And it has held a place in fame as the land of the toboggan and the ice palace. But, comparatively speaking, all that had a reality in these bygone conceptions of this land of ours has passed away and little, save the sentimental, remains of them. The forest has been transformed into the cultivated field ; the rivers and lakes have lost their romance and become the highways of commerce ; the beaver has vanished before the heavy draught-horse and the dairy cow ; the maple leaf, except as an ornament, has been replaced by the plum, the pear and the apple bough ; the toboggan has migrated to the northland and the ice palace has melted away, and so likewise has the false fame that it provoked. The reality that remains with us is the fairest and most favored land that man possesses. The enthusiast in horticulture has come to view the prospect, in this part of the Dominion at least, as one of incomparable possibilities ; and the practical fruit-grower does not look without encouraging promise into the future, as he contemplates the profitable results of the past two years, and the reputation the apple of Ontario has made for itself abroad.

Thirty years ago, I was a boy living in the vicinity of Port Hope. It was to me an enchanting spot, and memories ever recur to me of the days when I used to ramble through its deep ravines in search of wild strawberries ; or into the breaks and woodlands for the wild plum and gooseberry ; or invade sylvan glades where rippled the trout-brooks ; or climbed the pine-wooded ridges to look—as Byron used to do the ocean—upon the lake, which, to my boyish fancy, was a majestic sea.

Ontario, how sweet thy memory brings
My careless boyhood back to me ;
When ardent hope on fancy's wings
Beheld life's future gleam like thee.

At that time the old Spitzenburg was in high favor, in quality the king among apples. The yellow Belleflower, the Genetting and a few other named varieties had their place, and the rest of the orchard was made up largely of a come-by-chance collection. Among the choicer fruits, the cherry was the queen. Occasionally one would come across a farmer with an Yellow egg or a Green Gage plum tree on his premises, and the existence of a pear tree was famed for miles about.

After an absence of twenty-five years, I returned, during the summer just past, to spend a few weeks in that loved, and, in some senses, hallowed home of my boyhood. But what a change! Looking from one of my old haunts, out upon the lake, a soft and silent voice spoke from within, "changed in all save thee." The neighborhood, however, had lost nothing in beauty, and certainly none of its interest and attractiveness for me. Although the woodlands, which used to stretch away to the northward, had nearly all disappeared, the apple orchard on every hand had taken up a considerable portion of the landscape they had left bare. Not the apple alone, for the plum and the pear held a prominent and considerable place. It struck me, indeed, that the section from Whitby to Cobourg and northward, about ten miles, was peculiarly adapted to pear culture, for nowhere in the province did I see trees looking more thrifty, or anything like as heavily laden with fruit. I saw nothing to compare with them at St. Catharines or Hamilton, on my way round about, returning home. The apple orchards in that same tract referred to were likewise uncommonly thrifty: the Baldwin, the Greening and the Spy surpassing anything that I had seen west, except perhaps in the neighborhood of Clinton. The plum does well down there; and why should it not? for there the wild plum seems to be in its nursery home.

Driving northward toward Peterborough and Lindsay, through our good friend Mr. Beal's district, and making closer observations by the way, I was persuaded that Mr. Beal has a good deal of educating to do among the farmers of his vicinity and southward. I never saw a country so full of wild plums, many of them comparing favorably with that humbug, the Weaver, and also wild or chance apples. The roadside and inland fences seemed to be in some localities overgrown with both of them. But I found a great falling off in the better varieties of apples after leaving Port Hope, about fifteen miles, and on to within a few miles of Peterborough and Lindsay. On speaking to some of the farmers of the defect, as I termed it, I found them in a skeptical frame of mind as to the suitableness of their soil and locality for pears, cultivated plums and the better varieties of apples. I was convinced of their mistaken idea, the farmer at the front thought that way but twenty years ago. It is true, where I did come across a more progressive farmer and found an excellent orchard upon his place, that his trees were not as thrifty in appearance as further south; but they were sufficiently thrifty and well enough loaded with almost perfect fruit, to convince me that the prevailing belief among the farmers was a mistake. At an altitude of

nearly one thousand feet above Lake Ontario, a few miles south and west of Peterborough, I saw some gorgeous plums, some very excellent pears, and an apple orchard that a Grimsby fruit grower would envy. I will just say in concluding this letter, that I discovered, as I believe, the native home of the Saunders plum. The spot is a few miles from the town of Cobourg; I saw the plum growing in this vicinity and got its history. But I will speak of that in a future letter.

Mitchell, Ont. T. H. RACE.

STRAWBERRIES AND GRAPES IN NORTH SIMCOE.

NOT having contributed anything to your columns for a long time, I now send you a few particulars of the past season's results. Notwithstanding the terrible drought of last spring, strawberries did fairly well. My best berry this year was *Manchester*. I find it a large berry, bearing immense clusters, and holding out well through the season. *Crescent* came about next in productiveness. *May King* is a fine flavored berry, attractive looking, and does well in a shady place, but does not hold out well, is soon over. In grapes, I grow *Worden*, *Lindley* and *Massasoit;* all did well, with a good sale, but prices were low. I think this would be a good grape growing section. Mine were very much admired, both for size and flavor. One gentleman told me of a relative of his growing 40 acres of grapes near Lake Erie, but declared that my grapes were much larger than those.

My *Russian Yellow Transparent* apple, received from the Association a few years ago, had about seven apples on this year. I was under the impression it was a summer apple, but at this date (November 9th) is quite hard and sound. Perhaps I got the wrong apple. Hoping the circulation of the HORTICULTURIST will continue to increase, as it deserves it,

I remain, Sir, yours truly,

Penetanguishene. G. J. R.

NOTE BY EDITOR.—Our friend, G. J. R., must have received some other Russian apple by mistake, in place of the Yellow Transparent.

VALUE OF MUCK.—Every owner of a swamp should realize the fact that a ton of the air-dried muck may be worth from three to five dollars for its fertilizing value, as estimated for its nitrogen alone and as compared with the same element in artificial fertilizers. Those who have used it as a litter in stables have found each ton of it to double the value of the manure. Thus, it becomes to the owner worth precisely as much as the manure.—*Southern Floral Magazine.*

THE MASON EVAPORATOR.

IN compliance with your request, I herewith submit a description of the Mason evaporator, made from memory. Size, 4x7x7 feet to eaves; frame made in three sections of 2x2 lumber, one at each end and one in the middle. I enclose the whole of one end with matched stuff, allowing the centre piece or board to extend one foot above the peak; cover the other end same way or within thirty to thirty-two inches of ground, that is the width of a piece of sheet iron. On the side, board to within four inches of the ground; this space is left on both sides for ventilation

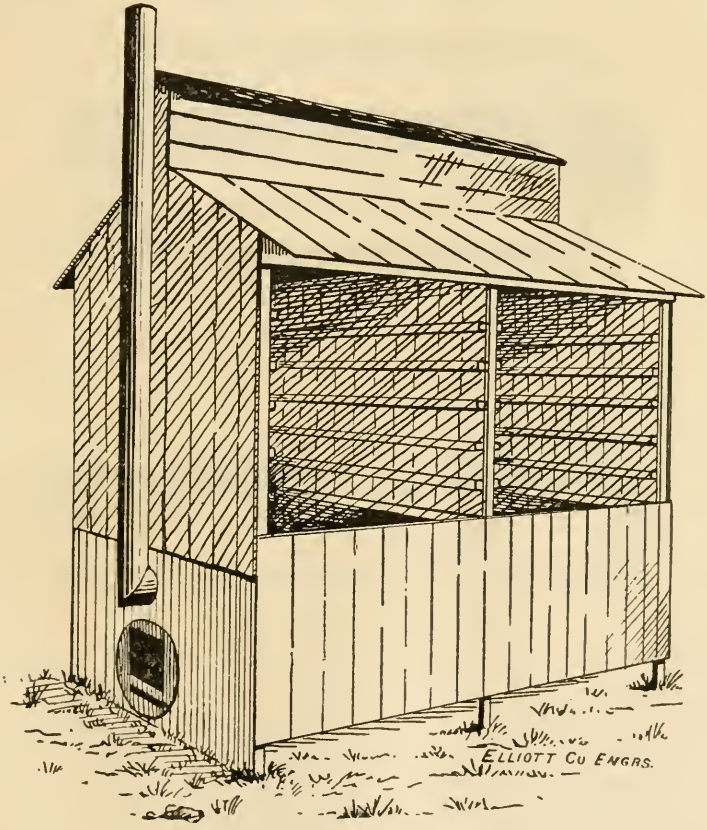

FIG. 60.—THE MASON EVAPORATOR.

and draft of outside air. Slides for two single trays are made in this space under the heater. If draft of cold air is too strong, a strip of board is set against the opening on the windward side. The other side has first a six or

eight inch strip, lengthwise under the eaves, to allow them to extend over without interfering with trays or door. Next, a wide board, say twenty or twenty-four inches wide, hung with strap hinges at lower edge. Here, trays are slipped in four inches apart, on slides nailed on the frames, and on both sides of the middle frame, care being taken to fill up the spaces behind the slats, so that the hot air cannot pass through without going over the apples.

The trays should be only three feet eight inches long, leaving a space for the heat to pass around the ends. Then the first is pushed back, leaving a space four inches in front. The next, leave the space at the back, and so on ; this will give a strong current of hot air between the trays, besides what passes over. Trays should have half inch play, so that they will go in and out easily. And the green fruit should be kept on those nearest to the heater, to prevent scorching, with

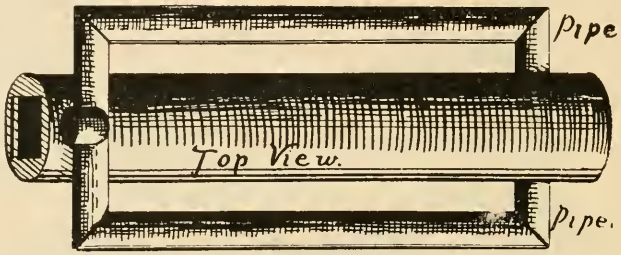

FIG. 61.—CYLINDER.

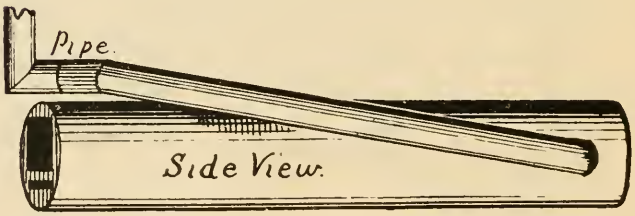

FIG. 62.—SIDE VIEW AND PIPE.

a very hot fire. Trays have to be drawn out to be cleaned. For roof, use matched stuff, leaving four inches open whole length of peak for ventilation. Put wide board on the top of the two centre end boards that extended above peak, and strips on side, so as to leave four inch space on each side. This completes the building.

For drying apples, have strips of pine cut, quarter inch square, and nail on the trays so that one corner is up. For berries, use wine cloth. There should be as many trays as you have space for, then you can have several spread at once.

For heater, obtain two round cast-iron heads, with flange for sheet iron. One has a door for wood and below it a draft hole. Sheet-iron is often used for one head. For this size have them fifteen inches in diameter. Take these

to any tin shop and have a sheet-iron cylinder made, six feet long. Near the back end, have a stovepipe hole made on each side. Put on pipe with elbow running towards the front, and with elevation enough so that they may come together in a T on the top of cylinder; and coming to the outside on the end just above door for wood. Here is an another elbow, and the pipe goes up the end on the outside to a little above the ventilator. This is the best heater known, and you can use any wood, even to pieces of rails six feet long; it will dry ten bushels of apples, or same of Black Cap raspberries, in a day. The lower part of the end where the heater enters and pipe comes out, should be of sheet iron. No grate is needed in cylinder.

Some use eighteen or twenty inch cylinder, and add three feet more to length and have space for three sets of trays. This gives longer return pipe, too, and saves more heat in proportion. When completed this whole thing can be tumbled on a wagon or stone boat and handled anywhere. Whole cost, with wood slats or trays, about $20.

Port Huron, Mich. L. B. RICE.

JACK FROST is the best friend we have. He kills off myriads and myriads of germs which otherwise would produce epidemics of disease, and the alternate freezing and thawing of spring and fall, have the same effect upon disease germs, typhoid fever germs for instance, as it would have upon a field of corn after it had sprouted. Germs that will stand either a great deal of cold or a great deal of heat, are killed by a sudden cold snap, after they have been started into life by a few days of warm weather, just in the same way that a field of corn a few inches high would be cut down, whereas, the seed corn itself before the germination would stand a great deal of cold without injury, and also a high degree of heat. The alternations then, of heat and cold in the spring time and fall, are peculiarly beneficient in their influence upon life and health. If people were not so careful to preserve typhoid fever germs in cesspools and wells this disease would be entirely exterminated by the action of changes of the weather upon its germs. Considering these things then, we ought not to find so much fault with the weather, nor be so much discontented with its changes.—*Dr. Kellog, in Fruit Growers' Journal.*

PROPER TREE WASH.—Whitewash on trees is unsightly and less effective for repelling borers than common soft soap. Washed with the soap three or four weeks after blossoming they will show the treatment speedily in greater thrift and vigor. I have often used the following, which I think even better for trunks and larger branches of fruit trees than soft soap: Heat to the boiling point two gallons water and one gallon soft soap. When the soap is all dissolved add one-half gallon good, strong, crude carbolic acid and stir until all is thoroughly and permanenty mixed. This, applied with cloth or brush, kills bark lice, keeps off borers, and invigorates the trees.—*Colman's Rural World.*

AMATEUR GARDENING NEAR TORONTO.

LESSONS FROM EXPERIENCE.

IT is some years since I have troubled the regular subscribers of the HORTICULTURIST with what I call my experiences. I have been working away in a quiet manner, meeting with disappointments and reaping some experience, but I find that it occupies valuable time for getting that experience, and some more to avail oneself of it. I do not know whether it is fancy on my part, but it does appear to me that the insect pests are upon the increase, yet one always determines to give the shrub, plant or the article attacked one more trial, and, if no change, then to put the mental threat into execution. My chief amateur gardening consists in the growth of grapes, and it is concerning these I desire to give my experience. During the last four years I have found it difficult to ripen mine thoroughly, though I have them in a good situation.

The months of July and August (the real time for grapes) have invariably been cool, and, although we may have had mild, warm days in September, yet the shortness of the days and the heavy dews are a deterrent. I have about twenty-four varieties. This year I have fruited for the first time the Early Victor, Niagara, Empire State, and Bacchus. I find the Early Victor the first to ripen, earlier even than the Jessica. It is not a first-class grape, and I should only grow it for its earliness. Some of Rogers' blacks are far superior. The Empire State is too late to be depended upon here. It is not, in my opinion, so good as represented.

From a report of this grape which I have, I quote, "Flavor sweet, rich and sprightly, without foxiness and among the best." However, I think we have, and have had, many grapes which are far superior in flavor and sprightliness. Personally, I would not recommend it.

The Bacchus is only good for wine, and with me the bunches are disappointingly small. The Niagara has ripened, but I have not an exalted opinion of its flavor; it is a fine-looking, showy variety, but, when ripe, has a somewhat mawkish flavor. Its appearance, however, is attractive. The Jessica is sure to ripen, but is not such a favorite with me as formerly. I find the pulp somewhat difficult to separate from the seed, and the grape lacks richness, and the color is against it, yet I should always recommend it because it is early and of fair medium quality. The bunch and berry are small, which are not in its favor with the general public. The Delaware grows well with me, the bunches and berries are large. To my taste it is one of the best cultivated, and I find it productive. If I could only ripen the Iona, I should grow more of that variety than any other,

or there is no out-door grape superior to it, either for table or for wine, and I find t to yield more juice than any other variety. I got twenty gallons pure juice from ten vines. Of the Rogers' red varieties, I find the Lindley (No. 9) to be the best. I have Nos. 3, 9, 15, and Salem. No. 3 always bears well with me, and the bunches are fairly compact. No. 9, which is reported as straggling in its bunches as a rule, forms large compact bunches. The Agawam has a large berry, but I find it to be a poor bearer. Salem is late and very apt to mildew and has done so this year, though I like its flavor. I only grow the Herbert among Rogers' black varieties. It is late, but is a handsome, good flavored grape. The Brighton's bear well and is an excellent grape, productive, and, when ripe, is difficult to surpass. The Vergennes succeeds well with me, and this year I had some very large, handsome bunches. One vine had at least fifty bunches on it, more than half of which were very large ; it is a good keeper and I like its somewhat unusual flavor. I have had them in March or April. I merely put them in the ordinary grape baskets, with newspapers between each layer, and hang them up in a cool cellar. My good opinion of this grape grows the longer I have it. The Creveling, I find to be a first-class table and wine grape, and difficult to be beaten. I know the books to say that it very seldom sets its bunches, and for that reason is an unreliable variety. My first experience agreed with this. I had two rows of them, each vine ten feet apart each way. Each had two arms, each arm ten feet. Being dissatisfied, I took out every alternate vine and planted with other varieties. To fill up the vacant spaces in the mean time, I extended the Crevelings so that each had forty feet of bearing wood. Since this was done my Crevelings have had the largest and handsomest bunches in the garden. The crop has been enormous, probably fifty or sixty pounds to a vine, and scarcely a bunch not well and closely filled. One of my Lindleys is forty feet long and bears, the whole length, well-formed, large, handsome bunches and bears better than one (ten feet from it) which is only twenty feet long. I have come to the conclusion that some of our varieties require long pruning, and to get them in perfection you require to give them ample space. If so, there is no reason why a Rogers should not bear one hundred good sized bunches. The above is my experience, perhaps another might not find it to be so. A friend told me the handsomest Isabella grape he ever saw was one which had been allowed to cover a large space and bear heavily.

At page 303 of the October HORTICULTURIST the Elvira is recommended for the amateur's garden. I have grown this variety for years, but, if I had only room for a few, would never dream of growing it. I have it for covering sheds. It is hardy, has large leaves, is of rapid growth, a heavy cropper but very late, and not at all a table grape ; when ripe it drops fearfully.

I have not been successful with the Concord blood ; have had to throw away Moore's Early, Lady Pocklington, etc., and have a poor opinion of them all, but, in other localities, they may be better. I suppose what one seeks is

first, flavor and then, appearance—earliness of ripening being a great advantage. The Delaware, Rogers 3, 9 and 44, Brighton, Vergennes, are all delicious, vary in their flavor and are all showy. I should recommend the Creveling were it not that other experiences are against it, and my good fortune may be un usual I find my grapes to ripen in the following order : Early Victor, Jessica, Rogers 3 and 9, Delaware, Agawam, Brighton, Creveling, Rogers 44 and Vergennes.

My soil is sandy and I use barn-yard manure. I expect the Concord varieties succeed better on clay soil, and, probably, some of the varieties I grow would not succeed so well in heavier soils.

I wish nurserymen would be more careful (to use a mild term), for I have twice ordered a Damson tree, and on each occasion it turned out some other variety. I have a white grape on a vine which was sent to me as a black variety. I have a Mount Vernon pear which ripens early in September, and a Petite Marguerite, which ripens late in October, and a Seckel much larger than a Bartlett. Often I think nurserymen, not having the variety asked for, send what they think suitable, and thereby cause a good deal of annoyance and improper language. It is annoying to wait four or five years and find you have what you did not want. I have a seedling grape three years from seed, which has grown this year two shoots, one twenty feet the other seventeen feet long, and will, I expect, bear next year. The Mills grape you sent me made a short growth, but the wood has not ripened fully. I summer prune my grapes at least four times during July and August, and I think the labor repays me, for I do not suffer much from mildew. About the middle of last August, the leaves of the Delaware were severely attacked with mildew, but the fruit was untouched ; the cause, I expect, was the rain following the spring drought.

Among raspberries, I find the Caroline a heavy bearer—its flavor is not first-class, but it mixes in well with others. The Golden Queen is good and hardy. I summer prune mine freely and have them like currant bushes. Smith's Improved and Downing gooseberries always mildew heavily with me ; they did not bear at all this year. Among plums, I like the German prune, it is not highly flavored, but is a heavy cropper, remains long and late on the trees and has no equal for stewing. The Cory sweet corn smuts so much that it is not worth cultivating. I find apples disappointing ; if you get a good show of blossoms, the greater quantity of the fruit drops off. This is my experience.

Among flowers, I have gone in for the Columbine lately, and this year had twelve or more varieties. Some are very handsome ; one just like the purple passion-flower. Another, like the large, single fuchsia, a new yellow variety, flowered from early June till late in September. Some of the perennial poppies are very handsome ; they flower early, but one advantage is that they come up every year. The Iceland poppies are very pretty and free bloomers. The Canterbury Bell is too much neglected. It is a handsome, showy flower, a free bloomer and easily raised ; it comes up, as a rule, self sown. The Fox-Glove is

also a hardy, showy flower; the Golden Wave Coreopsis is, I think, the finest; is a constant bearer and sows itself. Sweet peas, I find, succeed better by sowing very thickly and fairly deep. Some single Dahlias I sowed in the hot bed early in April, and left there; flowered in July, and in September and October were blooming freely.

I hope you will not think that I have expressed myself too strongly on some things, but what I understand you seek is the experience of your readers.

Deer Park, October 30th, 1891. ALFRED HOSKINS.

MOORE'S DIAMOND GRAPE.—The *Rural New-Yorker* is favorably impressed with this new white grape which it has had on trial since the spring of 1887. We regard it as, to say the least, among the best of the many white varieties of recent introduction, such, for examples, as Hayes, Empire State, Colerain and Niagara. The berry is of medium size, nearly as large as Concord, the skin is thin, but as firm as that of either of the above mentioned grapes. The pulp is without *any* toughess. It is so tender and juicy, in fact, that seeds (from two to three of small size) separate so readily that their rejection requires little, if any, effort. It is sprightly and sweet *throughout.* Diamond is one of Jacob Moore's seedlings, a pure native from Concord and Iona. The vines, though not so rank-growing as many others, are yet healthy and prolific. The bunches are of good size, the berries set as closely together as desirable and clinging well to the stem. They are rarely shouldered at the Rural Grounds, or, rather, the shoulders are not decided, the bunch being symmetrically broad at the base, tapering downwards. The *R. N. Y.* desires to commend a trial of the Diamond to all its grape-growing readers.

IN pruning gooseberry bushes, keep the branches moderately thinned out, so that light may be admitted to the interior, and do not shorten leading shoots if of strength equal to carrying the weight of the fruits without bending to the earth; and some of the lower branches should be cut out, and the heads kept in good form, the laterals being shortened back to a few eyes at the base, and all root-suckers removed with the sucker-iron. Scrape the soil from under the bushes, if the gooseberry saw-fly has been troublesome, replacing it with mould from some other part of the garden not likely to contain the larvæ of the fly. When pruning, make a selection of shoots to serve as cuttings to be heeled in without delay, or made at once into cuttings and put into beds.

FEEDING OUR FRUIT AND VEGETABLE CROPS.

COMPLAINTS about the ineffectiveness of applications of bone meal or other plain phosphates or superphosphates to orchards, vineyards, small fruit patches and vegetable gardens are nothing at all uncommon. Yet such negative results are just the ones that should have been expected. Why? Because the substances named have little or nothing of value, besides phosphoric acid, of which fruit and garden crops require very small quantities.

The following table will show, approximately, what great demands for potash fruit and vegetable crops are making on the soil. This table gives the number of pounds of the principal plant foods removed in a full crop.

FULL CROP, PER ACRE.	NITROGEN, LBS.	POTASH, LBS.	PHOS. ACID. LBS.
Apples, 15 tons	30	45	3
Pears, 10 tons	12	36	10
Plums, 2 tons	16	8	2
Grapes, 4 tons	13	40	12
Berries, 1½ tons	..	7	2½
Sugar Beets, 20 tons	110	72	12
Carrrots, 20 tons	70	150	24
Mangolds, 20 tons	90	160	18
Turnips, 20 tons	75	110	25
Onions	32	26	23

In all this we have not yet taken any account of the plant foods that have gone into the foliage and the wood of the trees and bushes. Here again potash is just the substance needed in considerable quantity. The leaves dropping in autumn may remain on the ground under the trees and bushes, and thus return their constituents to the soil; or they may be blown away by the autumn gales into fence corners, road sides and ditches, and thus be lost to the soil. The prunings also may be burned up in the orchard or fruit patch, giving their mineral constituents back to the soil; or they may be carted off and burned in some back field, where the ashes will do no good to the orchard. Usually there is from these sources at least some loss, chiefly in potash, that, together with what the fruit crop has taken off, will have to be made good again by application of manure.

The table here given may not be more than approximately correct, yet it shows that in fruit crops we remove from the soil an amount of potash, ten, fifteen, and often more times as large as that of phosphoric acid. Many farmers imagine that orchards need no manuring. Perhaps a crop of grass, with all its

large amount of potash, is taken off besides. With such great and incessant drain on the potash supply, it will not be long before that supply is getting too short to allow healthy growth of tree, vine or bush, and a full crop of fruit.

Phosphoric acid is used in only small quantities. For these reasons bone meal, phosphates, etc., alone, are not what is wanted for a fruit tree manure. Potash is needed more than any other substances, and unleached wood ashes is one of the best forms, if not the very best, in which this can be applied. Where good ashes can be bought at ten to fifteen cents a bushel, we will not often be able to get a better or cheaper fertilizer.

Prof. C. C. James, of Ontario, Canada, recommended at a recent fruit growers' meeting the following formula for compounding a cheap and effective orchard fertilizer:

40 bushels of unleached ashes.
100 pounds of crushed or ground bone.
100 pounds of sulphate of ammonia, or nitrate of soda.

This quantity is to be applied at least once in two or three years. It supplies about 120 pounds of potash, 23 pounds of phosphoric acid, and 20 pounds of nitrogen.

Nitrogen, if such be needed in greater quantities, can be obtained in a much cheaper way by the help of crops that are nitrogen gatherers (such as clovers and peas, which should be lefton the ground to decay), than by outside applications.

In a majority of cases, perhaps, yard manure is the only form in which plant food is ever given back to the orchard or fruit garden. Twelve tons of it will furnish the 120 pounds of potash needed, but also two or three times as much phosphoric acid and nitrogen, as required for the crops. It will hardly be good economy, therefore, to use yard manure exclusively, especially if we should have to purchase it at anything like full value. The cheaper way would be to apply a smaller quantity of yard manure, say one-half of the named quantity, or six tons, every second or third year, and add to it the missing 60 pounds of potash in the form of unleached wood ashes, corn-cob ashes, cotton seed hull ashes, muriate of potash, sulphate of potash, kainit, etc. Tobacco refuse may also come handy as a source of potash in this emergency. Tobacco dust can be applied directly to the soil; stems may be either used as mulch, or composted with the yard manure. My ration for the yard manure and potash salts combine would be six tons of the former, and 120 pounds of muriate or sulphate of potash, or 500 pounds of kainit; and would prefer to apply this every second year at least.

We should fully understand, however, that simple phosphates alone are no manure for fruit crops. Potash, on the other hand, is the chief substance needed, and we cannot easily apply it in too large doses for fruits. A sufficiency of potash makes bush and tree fruits finer, sweeter, better in flavor, and renders the wood more resistent to severe cold.

Vegetable crops usually make still heavier draughts on the potash stores of the soil than fruit crops. In carrots, mangolds or turnips, for instance, we remove over 100 pounds of potash per acre, if the crop be simply a fair one, and perhaps over 200 pounds, if it be a heavy one. This loss, of course, is usually made up by heavy dressings of yard manure, every ton of which returns to the soil about ten pounds of potash. This calls for applications of at least from fifteen to twenty tons of such manure per acre for every crop, and for larger ones, where very large yields are obtained or aimed at. In every event, yard manure will be found a most excellent fertilizer for these crops, and one of the best means to maintain the balance of soil fertility.

The query now comes up, what to do in case that yard manure is not available? Perhaps the grower, following the advice given by expert gardeners, has used bone flour, or other phosphates, for some time as a substitute for yard manure. He may have been very liberal in his applications, using a ton or more per acre; yet in all this dressing he has not furnished a single pound of the potash so urgently needed, only a large quantity of phosphoric acid, for which his crops has little use. Consequently the crops must soon suffer for the want of potash, and perhaps of nitrogen.

Having made the correct soil diagnosis again, the proper treatment is easily prescribed. Apply potash, and perhaps some quickly available nitrogen. My rations, in such case, would be about as follows, per acre, viz.:

1. 50 to 100 bushels of unleached ashes.
   200 to 400 pounds of nitrate of soda.

The phosphoric acid, contained in the ashes, would do no harm, and in some cases may be needed.

2. 200 to 300 pounds of sulphate or muriate of potash.
   200 to 400 pounds of nitrate of soda.

Cotton seed hull ashes, corn-cob ashes, composts of tobacco refuse, with other substances, can also be used to good advantage for the purpose of furnishing the needed potash.—*From Practical Farm Chemistry, by* T. GREINER, La Salle, N.Y.

THE *Forsythia* is not generally planted where it may be seen to the best advantage. Some years ago we saw one planted on a rather steep hillside or slope, and was strongly impressed with the suitableness of the position. Whether looked at from the little valley below or from the bridge above, the effect was charming. Here was a position for a full development of the natural habit of the plant, and the graceful curves of the long, slender branches that swept the green turf as they were gently swayed by the wind, produced a delightful impression that has yet lost none of its freshness. It is not often that a position of this kind presents itself, but when it does it should be utilized.

HORTICULTURAL EDUCATION.

AT several meetings of our Association, the subject of the study of horticulture in our schools has been more or less touched upon and advocated. Now, while we do not all believe in adding to the number of text books in our public school, or burdening the young with a multiplicity of studies, we believe that something might be done in this direction, which has not yet been attempted in Ontario. A book knowledge of horticulture is not the way to inspire any fondness for gardening or for the tasteful decoration of the house grounds. This mode of teaching has been altogether too much followed out in the pursuit of the study of nature; and the result is that, while many people can speak of the various rock formations which make up the earths, or of the many classes of flowers which decorate our woods, they cannot recognize any of them when they meet them. The only way to teach gardening is by actual work in the garden.

If we had in Ontario a school of horticulture, the sessions which were held during the summer months, and which could give certificates to those who had completed the course in any one department, it would be an opportunity for those teachers, who were so inclined, to spend their summer vacations agreeably in such a piace. They would thus become desirable candidates for the mastership of those public or high schools in which these subjects were required to be practically taught. This line of study in the schools could then be carried out by the head master, in the same practical way that he had learned it at the college, and might be a means of recreation to those pupils who were interested in horticulture.

Such a college as the one mentioned might have a series of courses, each to be completed in two months, and a diploma might be given to those who had completed the whole course.

The British Fruit Grower's Association are in advance of us in Ontario in this line. They have prepared a scheme of horticultural education, for use in public schools, which has been favorably received by the Department of Education there. It embraces a three year's course; the first, taking up the principles of plant life; the second, the elementary operations of gardening; the third, the details with regard to those operations in the cultivation of fruits, vegetables, and flowers, etc., which are of primary importance to the cultivator.

In addition to this, the county councils in England send out competent lecturers to lecture in rural districts upon these subjects. This latter work we are accomplishing quite as successfully as our English friends, through the farmer's institutes. The idea of establishing colleges for the training of teachers and for the education of a higher class of pupils, is nothing new. Such colleges are quite common in Belgium, France, Germany and the United States. In connection with the botanical garden of St. Louis, there is an excellent insti-

tution under the management of Professor Trelease. In addition to a library and laboratory, this institution has an extensive garden, in connection with which scholarships have been founded, and to which pupils have access on special terms. Here the principles taught in the lecture are carried out in practice, for six years; the garden pupils, in the earlier part of their work, having to work nine hours daily in the garden.

Our Association has, from time to time, taken up and pressed upon our Government, various matters of importance, and it will soon be time for us to discuss carefully a practical scheme for carrying out our wishes with regard to some system of horticultural education.

GARDENING AND FRUIT GROWING.

While I do not believe in mixing up things too much, yet, from experience, I find it best for the vegetable grower to adopt fruit growing with his business. These seem to go together, for the man who is a good gardener will make a good fruit grower; but would advise the farmer not to undertake to farm for profit and try to grow small fruits and vegetables for market. Of course the farmer should raise his own small fruits and vegetables, but without he has a good deal of get-up about him, he will neglect one or the other, and make a failure at both. The farmer should not neglect his farm work to make a few dollars from garden vegetables or a small-sized patch of strawberries. There is not much money in common truck to the gardener now, except for very early and late, and occasionally when a good market is struck.

The gardener's greatest money crop is the very early one. Then to add small fruits to his business at the close of early crops, the strawberry would come in, then the raspberry, then the blackberry; then summer vegetables would come into market. In running the two together, the gardener stands two chances; if his early crops fail, perhaps his small fruits will not.

But, besides these reasons, there are other reasons why gardening and fruit growing should go together, among which are the tools required; they are about the same, the tillage is about the same, and both require rich soil to make them fairly profitable.

In starting the raspberries, the ground can be used to good advantage in gardening, and not lose the use of the ground until the raspberries come in. Between the rows can be raised early cabbages, radishes or onions, or anything else that is gone before the plants get very high. It is the early crops that pay the gardener, for by planting early a second crop can be grown on the same ground. This is only practicable where plenty of manure is used.

The strawberry bed can be broken up after it is done fruiting, and planted in late cabbage, late cucumbers, or late corn, and the ground is in much nicer condition in the spring by working some late crop in the fall. We lose a great deal by not thinking of such things until too late, and then we plant and work our crop for no good, but for the late frost to take. The tiller of the soil should put more brains in his business, and it will be more successful.—B. in *Agricultural Epitomist.*

DANGER OF COPPER.

A CORRESPONDENT has directed my attention to an article in your October issue on the probable danger to the fertility of the soil from the copper present in the solutions used as fungicides.

I am of the opinion that Professor G. McCarthy is greatly mistaken in considering so seriously whatever element of danger there may be from this source, and that, in this article, he is unnecessarily sounding a note of alarm, which, though intended as a warning, may nevertheless prove to be a stumbling-block to many fruit growers.

Properly applied, *i. e.*, at the right time and in correct proportions, the copper fungicides have proved and are proving themselves to be of inestimable benefit in the orchard and in the vineyard. The increased value of the fruit has more than repaid, by a large margin, the outlay for spraying apparatus and materials and cost of application, and I believe the time has come when no fruit grower can afford to ignore this useful means of preventing fungus diseases. That the least important element in successful fruit growing, now-a-days, is keeping in check fungus growths and destructive insects, and, for this purpose, our present hope lies in the application of arsenical and copper solutions. By the more extended use of them the hope is confidently entertained that the loss occasioned by injurious insects and fungi will be greatly lessened year by year throughout the Dominion. I therefore crave somewhat of your valuable space, in order to place before your readers my reasons for thinking that the danger to the fertility of the soil, by the use of fungicides, has been unduly magnified, in the article referred to in your October number.

In the first place, the arithmetic is somewhat astray. Prof. McCarthy, if correctly reported, says that six treatments of sixteen gallons each are required per acre, making a total of 400 gallons, containing 108 pounds of copper sulphate. Should it not read 96 gallons per acre, containing about 26 pounds of copper sulphate?

Secondly, many of the best authorities are now advocating three or four sprayings instead of six, holding that the former are equally efficacious with the latter, if the operation is begun early enough in the season. Granting that each application requires per acre about 30 gallons, the total quantity of Bordeaux mixture per acre for the season would be between 90 and 120 gallons, containing from 24½ to 32½ pounds of copper sulphate.

Thirdly, Bordeaux mixture has to a very large extent been replaced by copper carbonate, either dissolved in ammonia—known as ammoniacal copper carbonate—or applied simply in suspension. When applied in suspension or dissolved, the amount of copper carbonate per 25 gallons of water is two ounces —a quantity containing the same amount of copper as four ounces of copper

sulphate. (Directions for preparing these solutions are to be found in Bulletin 10 of the Experimental Farm series.) Spraying with the fungicides, each acre of vines would receive during the season the equivalent of 1 pound to 1¼ pounds copper sulphate. It is thus made manifest that by this treatment—one highly recommended by those who have had experience with it—no such quantity as 108 pounds of copper sulphate is required per acre.

By far the greater amount of the copper that reaches the ground is in a condition insoluble in water, or becomes so after a short time. In the case of Bordeaux mixture, I would point out that copper sulphate, as such, ceases to exist immediately after the addition of the lime. Sulphate of lime (land plaster) and an insoluble compound of copper resulting. The argument, therefore, that the sulphuric acid of the copper sulphate combines with the potash of the soil, which is subsequently lost, does not hold good. The sulphate of lime does, to a limited extent, set free potash in the soil, in a condition assimilable by plants, and on account of this beneficial function, land plaster is often used as a fertilizer. The presence of minute quantities of an insoluble copper compound cannot, in my opinion, affect disastrously the fertility of the soil, nor act as a poison to plants. The acid fluids secreted by rootlets may have the power of rendering such soluble and thus capable of absorption, but unless the soil were heavily charged with copper compounds, no evil effects from this cause need be anticipated. Plants can only absorb into their tissues fluids and gases, and although they have the power to a limited extent of rendering soluble certain substances, insoluble compounds as oxide and carbonate of copper are for the most part harmless and inert.

For many years the application of Paris green (arsenite of copper, insoluble) has been in use for the destruction of the Colorado potato beetle. If the copper of such became and remained easily soluble, thousands of acres would long ere this have been rendered barren.

To sum up, my contention is that the copper which reaches the ground from properly conducted spraying is so minute in quantity and so insoluble in nature, that no fear need be entertained of injury to growing vegetation. It certainly seems to me that it would be very foolish to relinquish so potent a means of preserving our orchards and vineyards and their fruit, before science or practice proclaimed the true nature of such to be a curse rather than a blessing.

Ottawa, Nov. 10th, 1891. FRANK T. SHUTT,

Chemist of the Dominion Experimental Farms.

Our Markets.

APPLE MARKET IN BRITAIN.

A cable from Wood, Ormerod & Co., Edinburgh, Scotland, gives the following quotations, Baldwins, 13s. to 15s.; Greenings, 12s. 6d. to 13s. 6d.; Spies 12s. to 14s.; Various colored, 12s. to 15s. Expect an advance.

The Garden and Lawn.

THE OXALIS.

AMONG the most popular window plants is the Oxalis, commonly called Shamrock. This latter name is one which was first given to one of the varieties of oxalis in Ireland, when adopted as the national emblem. The legend is that St. Patrick once plucked one of its tripartite leaves to use in illustrating the doctrine of the Trinity. The term shamrock has also been given to the white clover and black medic; but when we speak of the shamrock, as a house plant, we usually refer to some variety of the oxalis. This plant belongs, botanically speaking, to the Wood Sorrel family, and is very closely allied to the geraniums. The name is derived from the Greek *oxys*, acid, which refers to the taste of the leaves, a characteristic that is very familiar to all Canadian boys and girls, who so often gather it to eat, and, improperly, call it "sheep's sorrel."

Our readers may perhaps be surprised to know how large a family the Oxalidaceæ is, there being some two hundred and twenty species known. Most of them, however, are inhabitants of the tropics; of these, about one hundred are in cultivation in greenhouses, and are much valued for their constancy of bloom. Only two or three, out of all this number of varieties, are hardy enough to be grown out-doors in our climate. Two are natives of Ontario, namely, O. Acetosella,

FIG. 63.—COLLECTION OF OXALIS.

or White Wood sorrel, of which the scape is one-flowered, and the petals white, with reddish veins. It inhabits cold woods, and blooms in the spring. It is very interesting.

The other is O. Stricta, or Yellow Wood sorrel, and has yellow petals and from two to six flowers on elongated peduncles. This is often found in meadows and cultivated grounds, and is the one most familiar to our readers. It has been naturalized in Great Britain.

These flowers are easy of culture, and, by choosing out of the many varieties those of different colors, a beautiful collection may be made for a hanging basket, such as is shown in the accompanying engraving, for which we are indebted to Mr. A. Blanc, of Philadelphia. So cultivated, they are very effective for a pleasing addition to the flower window.

FIG. 64.—BOWIE'S WOOD-SORREL.

They are propagated by seeds, by cuttings, or by the division of the roots.

Among the many beautiful species which may be commended to the notice of our readers, is one called O. Bowie, or Bowie's Wood-sorrel. It is an elegant species, and was discovered in the Cape of Good Hope in the year 1824 and imported to English greenhouses, from whence it has been widely distributed. The flowers are rose red, and, though naturally blooming in August, it is quite constant in its display of flowers. The accompanying illustration, Fig. 64, shows the habit of growth of this desirable variety.

WINTER PRUNING.—The *American Garden* says there are times when practice and theory do not apparently agree, and winter pruning is a case in point. The older gardeners have been taught that fresh wounds do not heal; that disease would certainly set in, causing death or permanent injury to a portion of the tree, at least. Theory certainly teaches that when the inner organism of the wood is exposed, the air at a low temperature will freeze the delicate parts, and death must result; yet we find nurserymen of later years pruning their trees during very cold weather, on account of the personal comfort to themselves, arising from the dry, firm ground to walk on, and no ill effects arise therefrom. The old adage of "pruning whenever your knife is sharp," is not far from the truth after all, although prejudice, at least, will incline us to defer the operation until the mild days of early spring. There can be no injury to trees in winter pruning, if done at times when the wood is not frozen.

New or Little Known Fruits.

SIR,—There appears to have been an unfortunate misunderstanding of my remarks in *Orchard and Garden*, about the Bessemianka and other Russian pears. In saying that I had found no one who had been able to bite into one, I mean because they had not been able to get hold of one to bite. But the CANADIAN HORTICULTURIST seems to understand me as meaning that they were *unbiteable*. From all I can learn, there are a considerable number of them of dessert quality, besides Bessemianka. In a few years we shall know more on this point.

Yours sincerely,

Newport, Vt. T. H. HOSKINS.

THE MARGIL is an old English dessert apple, of slender growth. Mr. Downing describes it thus :—Fruit small, roundish oblate, yellow, striped with red. Flesh yellowish, firm, aromatic. Good, October and November.

A correspondent sends us three samples of this apple, and it impresses us favorably for dessert, especially for those who delight in the Spitzenburg flavor.

THE black currants are cultivated the least of almost any good fruits in this country, and it seems strange that such a fruit is so generally neglected. The black currants were at one time very popular in England, and troches made from them were universally used by singers and speakers. There is no fruit grown that will make a richer jelly and prove of more medicinal value in cases of colds and sore-throats. The black currants sell for about half as much per pound as the red, but then the bushes yield a much greater weight. If their culture was more extended the demand for them would become more universal, and the time will come when they will be more appreciated by the public. There is certainly profit in currants even though little attention is given to their cultivation. They will pay their way even when planted on poor soil, and not cultivated, but under intelligent culture they bring in a handsome return for all labor bestowed upon them. In respect to the currants many of the new varieties introduced within the past few years are great improvements upon the old sorts, which were rather small in size and less agreeably flavored. Fancy currants put up in tiny packages always command good prices, and the first pickings of either the white or the red varieties cannot fail to bring in returns almost double those which can be secured later.—*Farm Life.*

Forestry.

FORESTRY IN BRITISH COLUMBIA.

QUESTIONS.

British Columbia is destitute of such woods as hickory, walnut, ash, rock maple, etc., and it is wanted to know :

1. How long do they take to attain a marketable value ?
2. Value at different ages ?
3. Cultivation ?
4. Soils best suited ?
5. How many to the acre ?

Answers by J. C. Chapais, Author "Canadian Foresters' Guide," St. Denis, P.Q.

HICKORY.

1. Hickory will be 6 inches in diameter on the ground and 20 feet high at 15 years, and has a marketable value long before that.

2. The small trees thinned out when about 1½ inches in diameter are used for hoops, hop poles, etc. The ripe wood is worth about $16 per thousand feet, board measure.

3. Sow the seed in autumn, as soon as ripe. It is safer to sow where the tree is to stand, on account of the danger of breaking the tap-root in transplanting. However, it can be sown in beds. Then, at one year old, cut the tap-root about eight inches below the surface, by thrusting in a sharp spade very obliquely under the plant, in spring or autumn, where the sap is quit. The hickory is late in putting out its leaves, and requires to be shaded ; so, it is advisable to plant between the rows some quick growing trees, such as ash-leaved maple, red maple, etc. Transplant, when two years old, in rows 10 feet apart, 23 feet in the row. Thin every two years in the row till the trees are 10 feet apart each way.

4. Hickory requires cool, deep and rich soil.

5. When half grown you may keep from 300 to 350 trees per acre, but later they will require more thinning.

WALNUT.

1. Walnut will be 16 inches in diameter on the ground and 30 feet high at 25 years, and will then begin to have a marketable value.

2. The wood of black walnut is worth $70 per thousand feet, board measure.

3. The cultivation is about the same as for hickory, as to sowing and transplanting.

4. It requires also the same soil as hickory.

5. When about 25 years old, they may be kept at the rate of 300 per acre, but when old the walnut covers so much ground that an acre would be shaded all over by about 20 trees.

ASH.

1. Ash trees will be 16 inches in diameter on the ground and 30 feet high at 25 years, and will begin to have a marketable value long before that for hoops, poles, etc.

2. The wood is as valuable as pine, and is worth $20 per thousand feet, board measure.

3. The seed must be kept in damp sand during winter, and be sown in spring. It takes sometimes as much as 18 months to germinate. It thrives much better when sown where the trees are to stand. If sown in bed, transplant from the nursery at two years. Plant in rows four feet apart and four feet in the row. Then thin every two or three years, till the trees are sixteen feet apart each way. Sow corn between the rows during the first years, to shade the young trees.

4. Ash requires rather damp, and deep, rich soil. It will never thrive on dry, hard and poor soil.

5. Keep 150 to 200 trees per acre.

MAPLES.

1. Maple is a slow grower. It will be 24 inches in diameter on the ground and 50 feet high at 45 years, but it has a marketable value sooner than that.

2. At about 15 years the rock, or sugar, maple will be 8 inches in diameter, and can be tapped for the sake of getting its sap to make sugar. From that age, the maple bush will yield a good crop of sugar every year, the sap containing about 5 per cent. of sugar. It may, at the same time, be thinned for fire-wood. When older, it is employed for wood-work, and is worth $15 per thousand feet, board measure. As fire-wood, it is worth $2.50 per cord.

3. The seed ripens in autumn, and should be sown at once. Transplant at two years and treat as the ash for transplantation. The plant soon shades the ground with its luxuriant foliage, so that the soil does not need to be cultivated very long.

4. Hilly, dry, stony or gravelly soil is what the maple requires.

5. On the average, maples may stand at the rate of about 200 trees per acre.

Of course, the measures and prices given in these answers are only approximative and may vary pretty much in different districts and according to the conditions of climate, soil, market, etc.

BONE MEAL AND NITRATE OF SODA.—In reply to our correspondent on page 357, we may add to Mr. Carpenter's reply, that these articles may be purchased from either W. A. Freeman, Hamilton, or from Alfred Boyd, 1 Wellington Street E., Toronto.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

SEVERAL hundred tons of grapes were lately seized by the New York health authorities, and ordered to be thrown into the bay. This was done because they claimed that the grapes were poisoned with copper, that spraying with Bordeaux mixture, which had been so widely practiced for the destruction of the mildew, had left a sufficient amount of poison upon the grapes to make them injurious, if not dangerous, to the health of the consumers. Of course, this must be a great loss to the shippers, and a serious consideration to all growers, who, under such circumstances, must either suffer the loss of their whole crop through mildew, or else risk its seizure after being shipped to the town. Naturally enough, the whole matter was referred to the Department of Agriculture, which had advised the growers to use the Bordeaux mixture for mildew, and which would, therefore, be in a measure responsible for any consequent misfortune to those who had followed its advice. Samples of the affected grapes, which had been seized by the New York authorities, were subjected to an official analysis, and the result set the whole matter at rest, so far as any danger resultant from spraying with copper is concerned, and shows how over-fastidious the health officers of New York City were in the execution of their duties. It was found that so weak was the solution of copper, and so little was the percentage which remained upon the skins of the grapes after spraying, that a person would require to eat at one time a ton of grapes, eight times sprayed with the mixture, before he would take into his system enough to constitute a single poisonous dose!

———

JOHN M. SAMUELS, who has been appointed Chief of the Bureau of Horticulture of the World's Columbian Exposition, is a Kentuckian, and was born in 1848. His father was a nurseryman, and when the son became of age, he set up

for himself in the same line, establishing the Louisiana nurseries in the year 1869. In 1874 he returned to Kentucky and secured a half interest in the Mississippi Valley nurseries, with his father, which he still retains. In addition to this, he has established extensive orchards of fruit in Mississippi, Tennessee, and Florida. At one time he cultivated a total of 160 acres of strawberries alone. All his life, therefore, he has been engaged in horticultural pursuits, both in fruit growing and nursery lines. In addition to this, he has visited the horticultural centres of Europe for the purpose of extending his knowledge of his particular branch of the business. At the New Orleans World's Exposition, he was awarded thirty-five premiums and five gold and silver medals for his displays of fruit. From all this, it would appear that Mr. Samuels is well adapted for the position to which he has been appointed.

RITSON PEAR.—On page 156, a subscriber inquires concerning the merits of the Ritson pear. At that time we had not seen any of the fruit, but to-day (Oct. 31st) a correspondent sends us three samples in prime condition for eating.

The pear is medium in size, pyriform, skin greenish yellow, sprinkled with very small russet dots and a red cheek on the sunny side; flesh white, rich, juicy, buttery and fine-grained; calyx open, in a very shallow basin; stem three-quarters of an inch long, attached to a flattened end, which can hardly be called a cavity; a fine dessert pear; season probably October and November.

The tree is a seedling, planted by the late John Ritson, of Oshawa, one of the first settlers in that vicinity and a prominent farmer and fruit grower. The tree is about seventy years old and has never been attacked by blight, and is a regular and abundant bearer.

The samples before us are from a tree which was planted twenty-five years ago, a sucker from the original tree, and which now measures twenty inches in diameter and thirty feet in height. This year it produced nearly thirteen bushels of first-class fruit. For canning and pickling it is counted as the very best by the owner of the tree.

KEEPING CABBAGES.—The *Rural Canadian* advises the following method for keeping cabbages in a cellar for winter use: Trim off all broken leaves. Set two parallel boards, six inches wide, on the cellar floor next the wall, and on these place two rows of cabbages with their stems towards the wall—but not crbwded. Cover with garden soil or dry sand. These should be looked over through the winter in order to take out any which show signs of decay.

NOTICE TO ALL SUBSCRIBERS FOR 1891.—The index for volume XIV of the CANADIAN HORTICULTURIST will be sent out in January number. Volumes bound in beautiful cloth binding, handsome design, ink and gold, for 50 cents.

Question Drawer.

MYROBALAN STOCK FOR PLUM TREES.

SIR,—I value your magazine for the timely hints and accurate statements, some of which I have verified in my own experience. Please inform me what value growers in Ontario place upon the Myrobalan stock for budding, and name localities where planted. I believe they have a tropical origin and may not be sufficiently hardy enough for the plum sections of Ontario. Some years ago, I purchased 150 plum trees from the United States, but in a year or two the bark near the ground separated from the wood and all are now gone. What do you think is the trouble?

W. C. ARCHIBALD, *Wolfville, N. S.*

Reply by S. D. Willard, Geneva, N. Y.

The Myrobalan is now almost the only stock used for growing plum trees, for the reason that other stock cannot be obtained. The time was when in Western New York we used almost entirely what is known as the "Horse Plum" seedlings, but the difficulty in growing seedlings of that kind has so increased of late years, that it has been almost impossible to obtain them. The plum is worked with great success on the Myrobalan and grows a fine, strong tree in the nursery. We have had a good deal of experience in the use of this stock of late years. At the same time I very much doubt whether the tree has as much value for orchard purposes as when grown upon the Horse Plum stock.

In addition to the above, Mr. W. Holton, of Hamilton, says: "I suppose that three-quarters of all the plum trees now offered for sale are worked on the Myrobalan stock. We have used it more or less for several years, and find that it takes the bud readily and makes a good merchantable tree in two three years.

SUCKERS AS STOCK FOR PROPAGATING PLUM TREES.

SIR,—What is the objection, if any, to setting out young plum trees that have sprung up from old roots? During the present season there are dozens of these which have sprung up in my garden and are now 2½ and 3 feet high, and about as large as one's little finger. I thought of putting out these strong, handsome, little shoots, and grafting them.

J. HOWE BENT, *Chilliwack, B. C.*

Reply by W. Holton, Hamilton.

The chief objections to using suckers as stock for propagating plum trees, are the increased tendency to sucker again and the habit of throwing out roots on one side only. Healthy seedlings can be obtained at such reasonable rates, that there seems to be no reason for using suckers.

THE CANNA.

SIR,—I received two bulbs of the Canna from the Fruit Growers' Association. One of them is growing vigorously in a pot in the open air. The leaves, however, partly die off after a while. Does the wind hurt them in swaying the leaves, or should it be kept in the house only?

JOHN MUELLER, *Waterloo, Ont.*

The Canna is a plant very easily propagated, either from seeds or by the division of the bulbs. If by the latter mode, each portion should have both buds and roots attached. The pieces may be planted in four-inch pots and grown in the heat, but this is not necessary. They will also succeed if planted in the open ground. Those which have been started in pots should be planted in the open ground as soon as the weather is fit. Plant singly in a good depth of rich soil with plenty of moisture. They ought to have warm, sheltered location, where the wind will not play too freely with the leaves. In the autumn, after blooming, they should be lifted and stored away in boxes or pots of earth for another season.

BOOK ON SHRUBS.

SIR,—Could you tell me where I can procure a small book on the cultivation of shrubs?

M. F. SMITH, *Port Hope, Ont.*

Not knowing of any book especially devoted to this subject, we referred the inquiry to Mr. Elias Long, of LaSalle, N. Y., editor of the *Popular Gardening* knowing that he has written a good deal under this head.

He says that in several of his books, which have been published, he has paid more or less attention to this question, and refers us to his larger work—"Ornamental Gardening for Americans"—which can be procured from the Rural Publishing Co., for $2; also to a more recent work of his, entitled "Landscape Gardening," which is sold by the same concern for 50c.

SHOT LEAF FUNGUS.

SIR,—I have been a subscriber to your valuable journal for a number of years and with profit. I would be glad if any of your readers could tell me what is the trouble with my plum trees and if there is a remedy. The leaves rust, dry up, and fall off after the middle of August. Some of them are now (Sept, 7th,) as bare of leaves as in winter. German Prunes are the worst effected. I feel anxious about the trees as I am just starting fruit growing for a living. I enclose sample of the leaves.

ALEXANDER JOHNSON, *Collingwood, Ont.*

We shall be glad if any of our readers will give their experience under this head. The leaves sent us by our correspondent are affected with what is known as Shot Leaf fungus (Septoria Cerasina), which was described in the CANADIAN HORTICULTURIST of 1890, page 315, to which we would refer our readers.

PLANT DISTRIBUTION FOR 1892.

THE particular attention of our readers is invited to the very valuable LIST OF TEST PLANTS to be sent out for trial in the Spring of 1892. It will of course be understood that the Fruit Growers' Association guarantees nothing concerning the merits of the trees or plants. They are sent out to be tested by the members and by all subscribers in order that reliable reports concerning them may be given to the public.

1. **Moore's Diamond.**—The new White Grape, described with colored plate in Volume X, p. 97. One year old plant.

> DESCRIPTION.—Originated by Isaac Moore. Described as a pure native; bunch large and compact; berry about size of Concord; color, greenish-white, with a yellow tinge when fully ripe; flesh juicy, almost without pulp; quality very good. Fine, vigorous and productive. (Nurserymen's price, $1.50.)

2. **The Idaho Pear.**—One to two feet high. This pear was described, and illustrated with a colored plate at the beginning of Volume XII of this journal. The fruit is very large, delicious in quality, and ripens in September and October.

3. **Four Plants of Woolverton Strawberry.**—This is one of Mr. John Little's seedlings, which he values very highly.

4. **Gipsy Girl.**—A new Russian Apple, imported by the Central Experimental Farm with a view of extending apple culture further north. Very handsome and reliable Winter apple for the north. Placed on our list by kindness of Director Wm. Saunders. Or one tree of *Round Borsdorfer*, or of *Blushed Calville* (excellent hardy varieties for the North, and which may be very valuable anywhere in Ontario), or of *Silken Leaf*, or of *Little Hat*. These are from new importations by the Experimental Farm, which are thought to have special value for the cold North.

5. **Two Plants of Aquilegia Bergeriana.** This is a very fine deep blue Columbine, obtained by the Central Experimental Farm from Dr. Regel, Director Botanical Gardens, St. Petersburgh, Russia, some years ago. It is a very early bloomer and is quite distinct from other varieties, and blooms before the others are in flower. It is not liable to become mixed, hence it can be grown from seed from time to time without difficulty and kept pure. A fine hardy perennial. Placed on our list by kindness of Mr. Wm. Saunders.

6. **Hall's Japan Honeysuckle.**—This is one of the most satisfactory and hardy of the honeysuckles. It is nearly evergreen; flowers, pure white, produced abundantly; fragrant like a Jasmine.

7. **Two Chrysanthemum Plants,** viz.:—Louise Canning, white; and Mrs. Richard Elliot, red.

8. **Two English Violets.**—Napoleon, double blue; Princess Louise, double white.

9. **A Year's Numbers of the Canadian Horticulturist.**—Either vols. I, II, III or IV.

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